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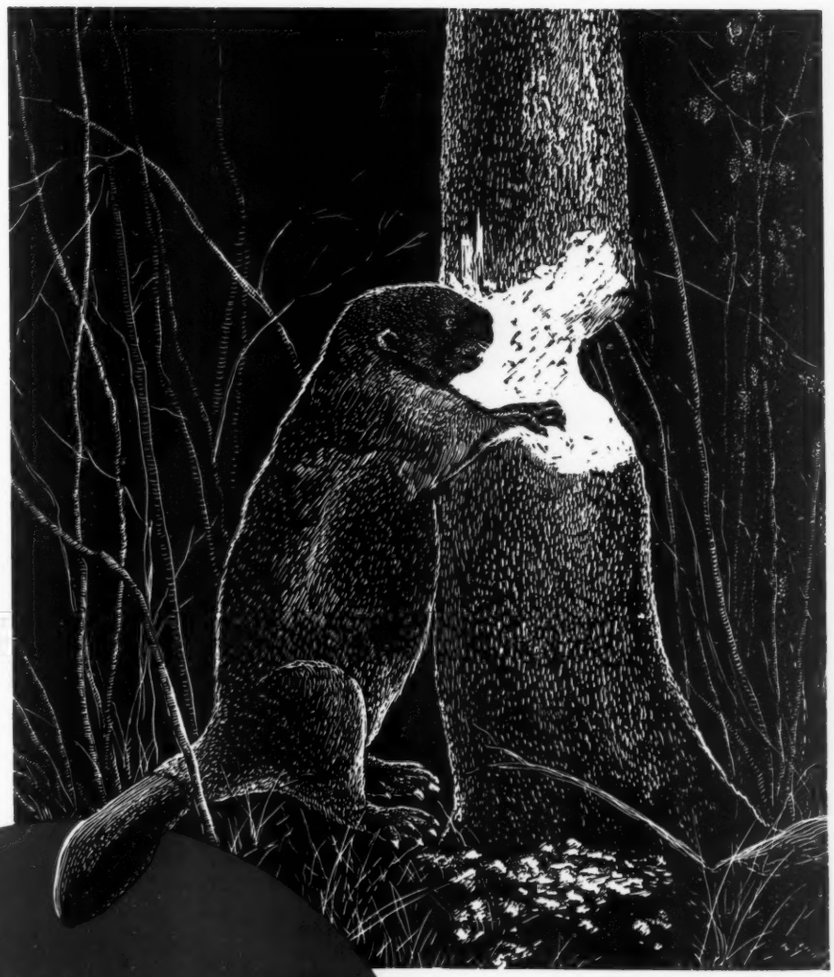

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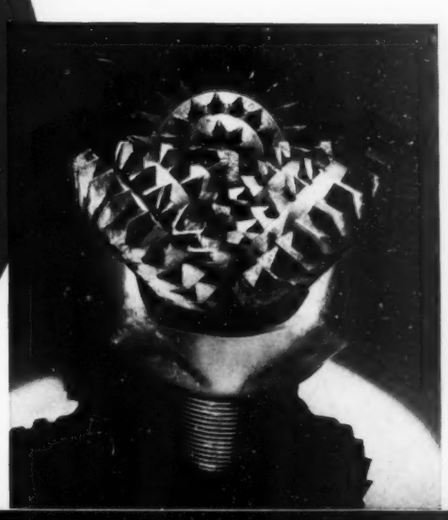

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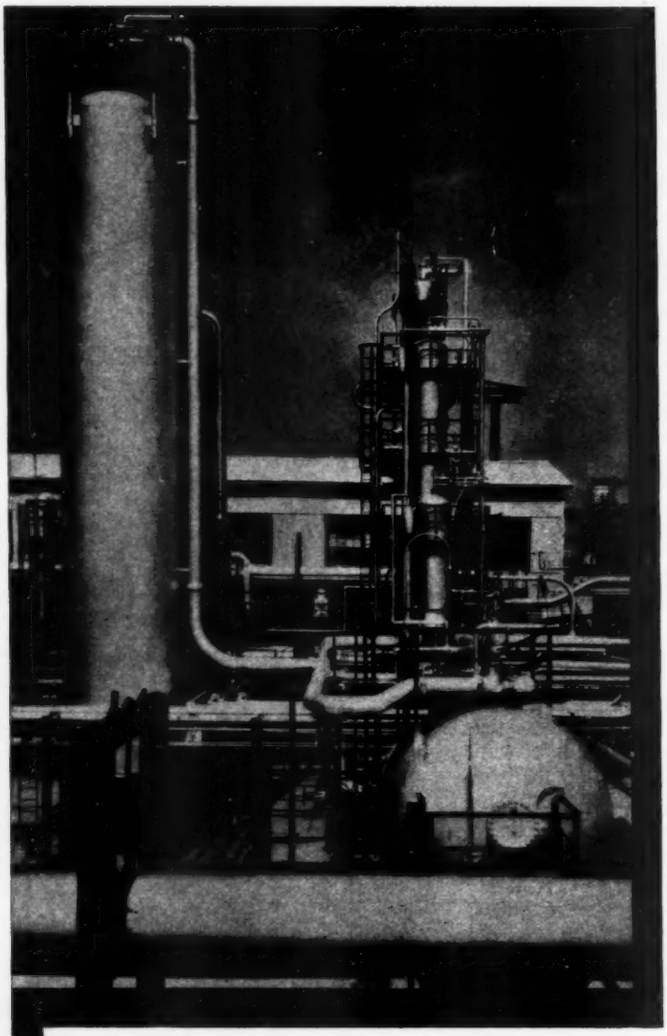

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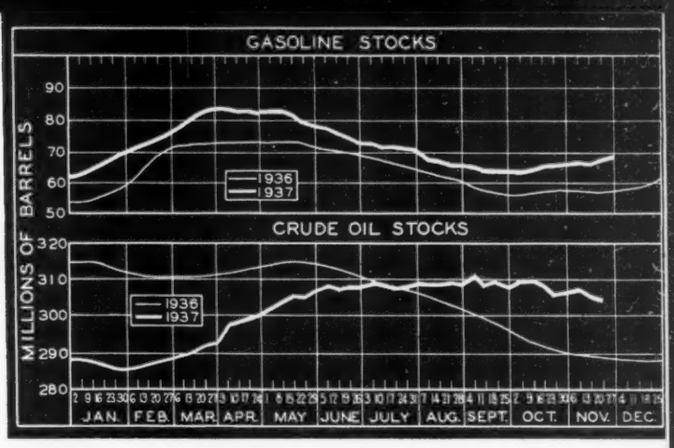


Remainder of Year Looks Better

THE largest reduction in daily average crude output of any week in over four years and the lower allowables of several states for December have resulted in a more optimistic feeling regarding the market situation for both crude oil and refinery products over the rest of the year.

CRUDE PRODUCTION *3,426,180 barrels daily average—down 148,890 barrels.*

CRUDE STOCKS *304,324,000 barrels as of November 20—down 1,284,000 barrels.*

GASOLINE STOCKS *68,544,000 barrels as of November 27—up 883,000 barrels.*

REFINERY RUNS *3,325,000 barrels daily week of November 27—down 40,000.*

While 69,000 barrels daily of last week's decline is accounted for by the East Texas Sunday shutdown, a favorable situation in crude oil supply and demand exists without regard to the curtailment in that field, which will continue through December 12. The decline in crude stocks for two weeks ending November 20 of 2,900,000 barrels (207,000 barrels daily) and previous Bureau of Mines stock and demand data indicate that crude supplies in most areas have been curtailed to the point where many crude purchasers and refiners will be able to liquidate inventories accumulated earlier in the year.

All of the larger oil-producing states have announced their December allowables. The Texas allowable will be 1,375,046 barrels daily or 20,000 barrels greater than the recommended output for the last half of November. With the East Texas shutdown to continue two Sundays in December the overproduction situation in the Lone Star State appears to have been solved for the remainder of 1937.

The reduction of 25,000 barrels daily in Oklahoma's state allowable for December should correct the remaining weak spots in that state. A large part of this reduction is to be made effective in the Oklahoma City field, where there has been more crude than needed by buyers over a period of several months. The outlook in Kansas is also more favorable.

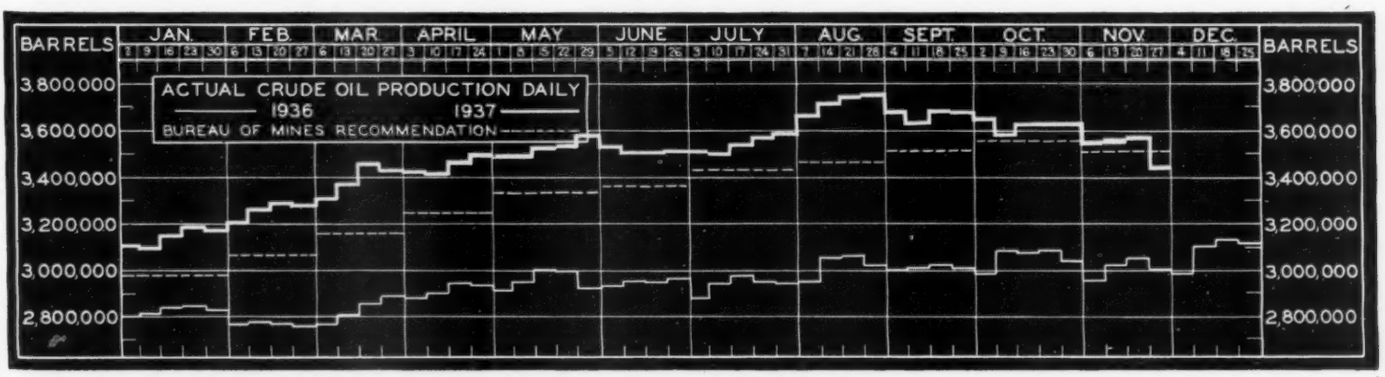
There is some criticism of California, Louisiana and Arkansas in their refusal to make reductions in output similar to those of Texas, Oklahoma and Kansas. The latter three states have absorbed most of the reductions in the drastic curtailment program which started in September and which has brought declines totaling approximately 350,000 barrels daily.

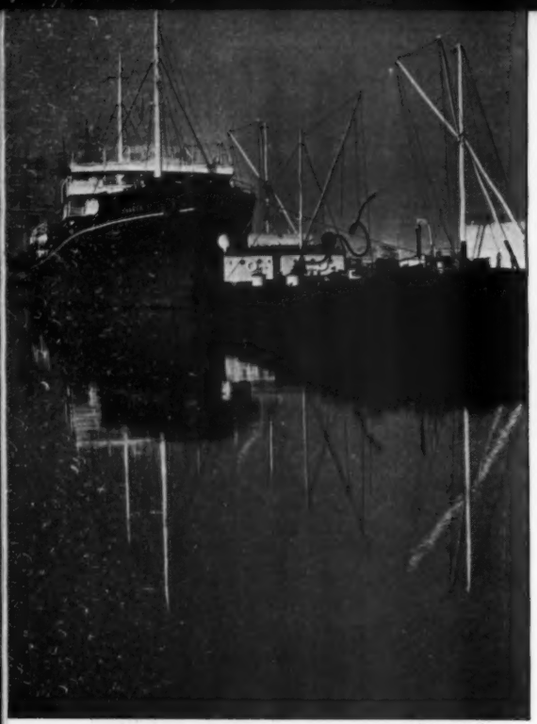
California operators are not concerned regarding their heavy production, which continued above 700,000 barrels daily last week. While greater than the government's estimated demand and the recommendation of the state's allowable committee, they point out that the output is being absorbed without increasing shipments to the East Coast or European export markets. The continued heavy demand from the Orient continues to be a controlling factor in West Coast markets.

Daily Average Production for Week

	Nov. 27 1937	Bur. Mines Nov. est.	Nov. state allowable	Nov. 20 1937
Oklahoma City	125,575			148,900
Fitts	80,250			80,850
Remainder of state	362,000			360,275
Total Oklahoma	567,825	598,000	575,000	590,025
East Texas	416,050			486,599
West Texas	188,248			205,000
North Central Texas	106,200			106,848
Texas Panhandle	72,798			77,550
East Central Texas	100,497			105,850
Gulf Coast Texas	329,100			336,198
Southwest Texas	109,050			114,350
Total Texas	1,321,943	1,413,300	1,354,140	1,432,395
North Louisiana	74,935			75,062
Gulf Coast Louisiana	167,750			169,000
Total Louisiana	242,685	246,200	253,150	244,062
California	702,000	674,600	674,600	712,750
Kansas	179,300	189,700	180,215	178,950
Arkansas	45,430	33,100		46,070
Eastern fields	132,200	124,000		131,150
Michigan	54,892	47,400		55,248
New Mexico	104,810	104,800	104,800	104,900
Rocky Mountain area	75,095	77,900		79,520
Total United States	3,426,180	3,509,000		3,575,070

Decrease, 148,890 bbls. daily.





Inman Co.

Richfield Oil Co. tanker at California terminal

Rising Petroleum Shown in Tanker

By H. STANLEY NORMAN

NEW YORK, Nov. 29.—Tanker construction, which continues unabated at a rate approximating 25 per cent of world shipbuilding, probably will play an important part in petroleum markets for at least a year and possibly longer.

Contributing to the unseasonal trend of tanker rates are two main factors. One is the extensive construction during the early part of 1937 and continued new orders both in this country and abroad. The other is failure of fuel oil demand to develop its full winter volume as early this year as last, partially due to the current level of operations in heavy industry with prime reference to the steel industry which, in some sections, has become one of the largest consumers of heavy fuel oil.

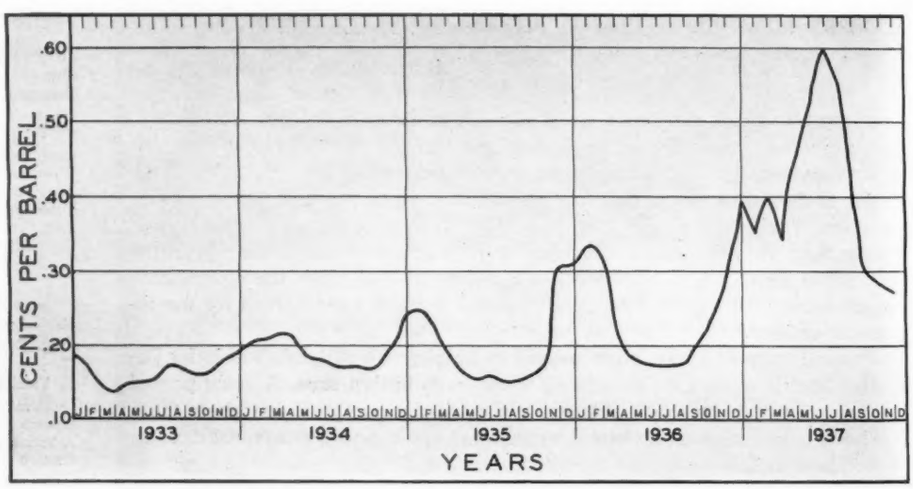
Boat owners and ship brokers do not anticipate rates on dirty bottom boats will climb higher than 35 to 40 cents per barrel at the peak of the oil-consuming season in January and February. Should these rates obtain, the cost of transportation will be approximately even with that of last winter. But there is ample indication the upswing may not continue into the middle of the summer of 1938 as it did in 1937 when peaks of 65 to 68 cents per barrel were reached in a few boats for emergency transportation.

New Tankers

Since the middle of 1937 there have been 52 new tankers launched or practically completed. But new business and replacement work has nearly equaled the completed portion, leaving roughly 80 tankers at various stages of construction in American, German, French, British, Scandanavian, Russian and Japanese shipbuilding yards. There were about the same number under construction on January 1, 1937, but only a few boats were turned over to owners during the first six months. Timing of the construction was such that deliveries could not be made much before the middle of this year. Behind this construction program are several factors in addition to the sharp increase in 1936 and 1937 transportation requirements in line with greater demand of all products. In the first place there is the need for replacements. In the second place there was a long period of years immediately preceding 1935 and 1936 when consumption trends, while moving upward, were at a modified rate. Furthermore, rates had only partially recovered from the slump of 1931 and 1932 when charter considerations reached rock bottom. The real upswing came late in 1936 and has held above or reasonably near the higher marks since.

Still another consideration was the lack of adequate profits in general operations to justify tanker building over bare requirements. Also, there were numerous independently owned tankers available. Until the demand developed and gave reasonable assurance of continuing its present rate of increase the larger companies found no necessity for negotiating long-term charters. A check of a list of tankers available for charter last week revealed that only one independently owned boat was offered and that on a basis of loading not prior to next June. Practically all the tankers now available for charter are owned by large oil companies or the big shipping companies. Removal of the independently owned boats has been through a process of long-term chartering. Independently owned boats are now, or soon will be, coming off the ways in this and foreign countries and will be put into immediate service under 7- to 10-year charter agreements, usually in behalf of one of the large oil companies operating on an international scale.

Still another consideration in tanker construction is the foreign currency situation. In some countries, with Germany the outstanding example, it is impossible for international oil companies to use their profit from operations, or at least to obtain full value, unless national commodities are purchased. In Germany, several companies have resorted to construction of tankers there as a means of redistributing their profits from refining or marketing operations, which otherwise might remain dormant in the country for an indefinite period. There are other commodities such as line pipe, tubular goods and refinery vessels which the Germans are qualified to manufacture for the oil industry. In the case of the larger operators in Germany, however, their requirements for steel products are either too little or too far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1933
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1935
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YEARS

Light oil tanker rates from Gulf to north of Hatteras

RATES FOR CLEAN TANKERS (GULF COAST TO U. K.-CONTINENT)

(In shillings and pence)

Year	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1937	19	25	31/6	36	30	30	28	29/4	27	24	22	
1936	14/2	14	14/2	16	14/8	15	14	13	11	11/6	12	13/8
1935	11	11/6	12	12/6	12	12	12/8	12/8	12/8	15/6	14	14
1934	8/6	9/2	10	10/2	10	10	10/6	12/6	12/6	10/6	11/2	11
1933	9	8/6	8/6	8/4	8/8	8/6	8/6	8/2	8/3	9	8/2	8/2
1932	9	9	9	9	9	9	9	9	8/6	8/6	8/6	8/6
1931	10	9	9	9	9	9	9	9	9	9	9	9
1930	29/6	50	46	29	29	12/6	12/6	11	11	9/6	10	9
1929	12/6	16	15/6	17/6	22/6	23	23	23/6	31	30	29	29/6
1928	16	17	17	17/6	17/6	18/6	18/6	16	15	14/6	14	12/6
1927	45	47	50	43	38/6	31/6	29	29	22/6	22	16	16

ATLANTIC COASTWISE CLEAN TANKER RATES (GULF TO NORTH OF HATTERAS)

(Figures in cents)

1937	35	40	34	45	54	60	55	40	30	28	27	
1936	33 18	32	23	18.33	17.83	17.30	17.25	17.50	20.80	23.75	29 25	39.46
1935	24 50	23	19	16.50	15.40	16	15	15	16.10	17	30.60	30 60
1934	20 75	20.88	21.63	20 33	18	18	17	17 25	17	17.45	20.35	24
1933	18	15	13.80	15	15	15.50	17 50	16 30	16	16.40	18 50	19
1932	15 50	14	16	15.50	15	16	16	16	16	17	16.50	17
1931	18 50	16 50	18	18	18	18	17	17	17	16	16 00	16 70
1930	33	38	38	39.75	41 50	37	24	22	20	18	17	17
1929	24	25 50	28	33 50	37	40	42	39	37	40	42	39
1928	19 50	20	22	25	34 50	33 75	32 50	30 50	28.50	26	24 50	23
1927	50	60	50	45	39	33	28	26	24	20.50	20 10	19.50

Demand Growth

removed to divert their entire profit into purchase of that class of products. As an alternate, the German shipbuilding industry has been called upon to furnish the medium for distribution of the operating profits.

The Royal Dutch-Shell group, Standard Oil Co. (New Jersey) and Socony-Vacuum Oil Co., Inc., are outstanding examples of those finding purchase of German-built tankers a convenient medium for absorbing the operating profits and turning them into useful channels.

While the replacement requirements are heavy and the need for additional capacity acute there is the ability of designers and engineers to build speedier boats and harbor improvement projects permitting the use in general of larger boats than 10 years ago. The new tankers are qualified to make about five turn-around trips every two months between the Gulf Coast and New York harbor, an increase of 20 per cent or more over the slower boats built 10 years ago. Harbor improvement projects all along the American coast and in foreign ports now permit use of larger boats.

"Mosquito Type"

Need persists, however, for the so-called "mosquito type" tanker. Competitive conditions in servicing small craft in the larger harbors, for refueling seaplanes and flying boats and for miscellaneous deliveries require that companies seeking this business maintain necessary equipment. Increasing costs of inland transportation are also forcing oil companies to use the small boats for replenishing bulk plants and bunkering stations along navigable streams. Evidence that the smaller boats are growing in importance is seen in that nearly 10 per cent of the boats now under construction throughout the world are in or near the 4,000-ton class.

From a purely economic standpoint the period of 1936-1937 has had less to recommend it in tanker construction than some earlier years. The cost of building boats in this country and in Great Britain, for example, is approximately 30 to 40 per cent greater than during the depression. On the other hand, the volume of business and earning capacity of companies engaging tankers were insufficient to justify building in 1931 and 1932 when the cost was lowest.

Current Rates

Currently the tanker rates from the Gulf Coast to north of Hatteras are 2 to 3 cents lower than in November, 1936, accounting in a measure for the recent reduction in gasoline prices along the North Atlantic territory initiated by Socony-Vacuum and Standard Oil Co. of New Jersey. During November, 1936, however, the rates on clean tankers skidded even below the current bid and asked quotations, dropping to a low of 24 cents per barrel or less compared to approximately 25 to 27 cents at which current fixtures are being made. There appears to be an inclination on the part of owners now to halt the tanker rate recession. An owner with a boat to charter last week refused to consider less than 30 cents in the face of a bid of 25 cents. He followed his refusal with declaration that the idle boat and all others under his jurisdiction would be held out of service as long as the market is in its present weak condition.

Winter Outlook

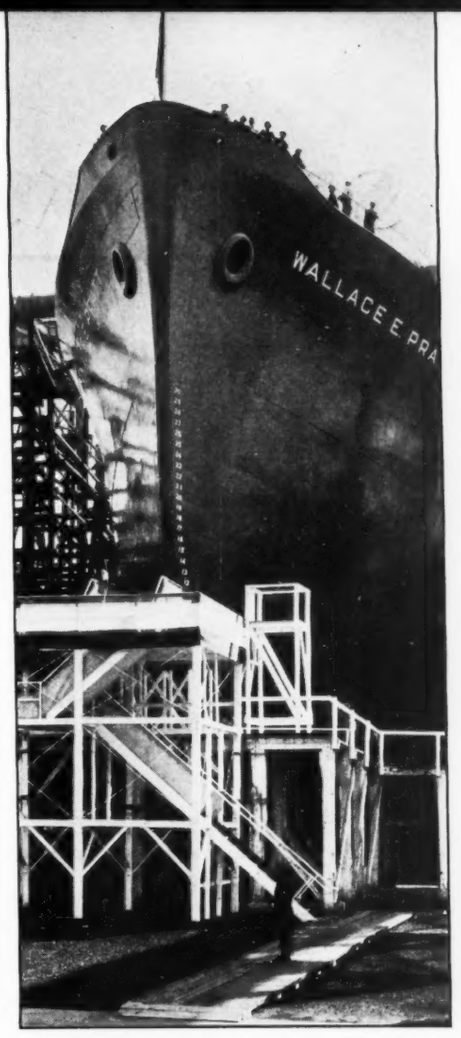
Chartering continues, however, at the current level of bid prices and there is nothing to indicate clean boats will experience any improvement over the winter. At the same time, the increased cost of operating, including more costly fuel, increased wages and supervision, inspection, repairs, etc., do not indicate rates can go much lower and remain profitable. In fact, several owners say they are unable to do more than swap dollars in making trips at existing rates. The urgent need of fighting grade gasoline in the Far East and in the Spanish civil war has placed an unusual drain on this type of material produced on the Gulf Coast. Since the Sino-Japanese war broke out considerable aviation grade gasoline and an even larger proportion of motor oil has been lifted from the Gulf Coast and North Atlantic ports for China and Japan.

Dirty boats are available for service from Pacific Coast ports to Japan at 26 shillings with 27 shillings asked for delivery in China. For clean cargoes the rate to China ranges from 31 to 32 shillings and 30 shillings to Japan. If cargoes are to be taken aboard on the Gulf Coast, a differential of 8 to 11 shillings prevails for the longer haul and for the Panama Canal toll. If the proposal to increase Panama Canal rates is adopted, it probably would terminate at least temporarily what little intercoastal business now exists. However, companies with production on the Pacific Coast, owning their tanker fleets and refining facilities on the Atlantic Coast probably could continue use of the Panama Canal even under the higher rates.

Dirty boats for service from the Gulf Coast to the United Kingdom-Continent are now available at 18 shilling 6 pence, whereas for movement of clean cargoes 22 to 24 shillings is the current quotation.

Fluctuations in the clean and dirty boat markets are in close parallel, although fluctuations as to detail are contingent on seasonal conditions. The accompanying tables showing the approximate rates by months for nine years and the first 11 months of 1937 will in a measure reflect the rate conditions which made the late 1936 and 1937 tanker construction programs imperative.

By the same token, the rates will reflect the customary dip in clean tonnage during the winter months, a season in which dirty bottoms are in greater demand at slightly higher figures.



Tanker Wallace E. Pratt, Standard of N. J.

Mrs. W. M. Irish christening the newest Atlantic tanker at the Sun Shipyards, Chester, Pa., and J. W. Van Dyke, chairman of the board of Atlantic Refining Co., for whom the vessel was named. It is the world's largest welded ship, 541 feet 5 inches overall, 18,500 tons, capacity 6,552,000 gallons

SPARKS FROM THE NEWS

NATURAL EXPANSION

Southwest Texas is coming to the fore as a producer of natural gasoline. The announcement this week that a 35,000-gallon-per-day plant will be built at Aransas Pass on the Gulf Coast is the latest addition.

FOREIGN AID

In giving credit for the phenomenal gains in petroleum demand this year, foreign buyers should not be overlooked. They have increased their purchases of crude and refinery products 114,000 barrels daily, or 32.2 per cent over last year.

TO THE POINT

Said the governor of Texas to the governor of Oklahoma: "I must respectfully decline to participate in the price-fixing conference you propose."

WESTERN OKLAHOMA

An extensive wildcatting campaign in the wide-spreading prairie country of western Oklahoma may develop in 1938, with considerable leasing currently reported in several of the western counties.

WHY?

Thirty representative common oil stocks dropped to 25.79, one day last week, the lowest average in over two years and about 20 points under the high for the year.

FOUR-YEAR RECORD

Last week's decrease of 148,890 barrels daily in crude oil production was the largest decline since September, 1933, when the NRA code for the oil industry first became effective. Current production is now down to the levels of early April.

A SUGGESTION

A small refiner suggests that major operators who may find themselves short of supplies due to the curtailment in crude oil output might consider the possibilities of buying gasoline, readily available from several sources.

RATE CURVES

A curve of oil-tanker rates over the past few years is similar to the variations of the stock market or the ups and downs of seasonal consumption of petroleum products. The almost weekly launching of a new tanker in this and other countries should bring about more stable rate conditions.

DESPITE WEATHER

Cold weather fails to stop discovery of oil pools in Kansas. Severe weather held the number of completions in the state to 35 last week, but two new producing areas were reported.

ON TRIAL

Wirt Franklin's testimony at Madison this week indicates independent producing and refining interests may have more at stake in outcome of case than those on trial.

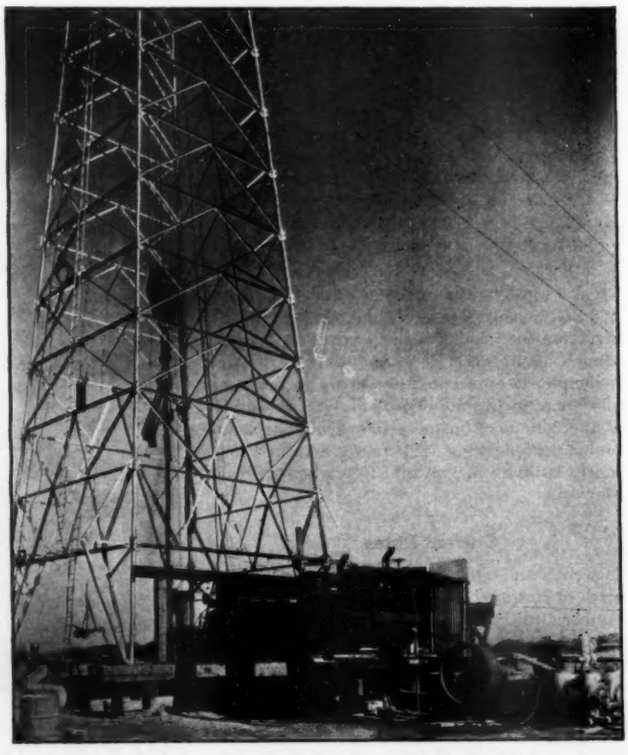
THE BASIS

The Chicago dinner to Doctor Ipatieff emphasizes the fact that the basis for the oil industry's progress is scientific achievement by those who are content to remain secluded in research and development laboratories.

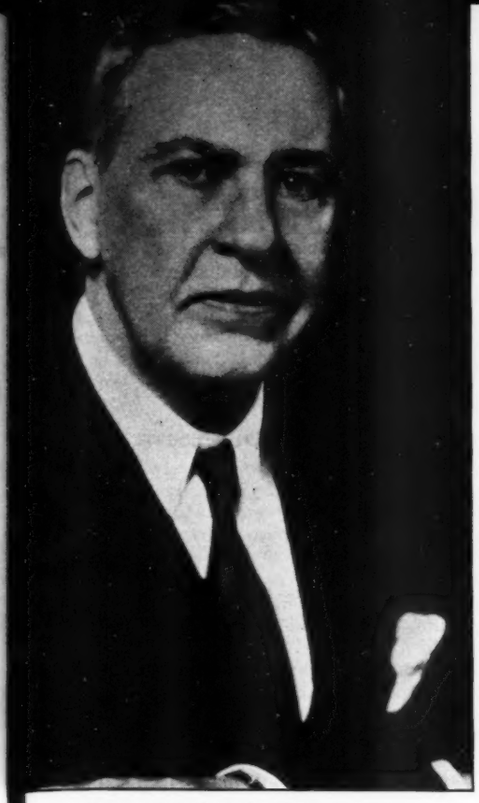
MORE DRILLING

Court action to restrict drilling in Long Beach extension of Wilmington field fails and 200 additional wells will result. This complicates the problem of control in an important area where more than 300 wells already have been completed.

OIL DISPLACES COTTON



Heavy rotary rig for deeper drilling on Wichita Cottonseed Oil Co. site in Kemp City field, one of the most active in Texas



VLADIMIR N. IPATIEFF

CATALYSIS: The Chemistry of the Future

By VLADIMIR N. IPATIEFF
Director, Chemical Research, Universal Oil Products Co.*

There are moments in the life of a scientist when it becomes appropriate to give an account of his accomplishments in science, partly to determine his influence in the development of the given science and partly to characterize the evolution of his scientific thought and his methods of research.

The first of these must be judged by his colleagues who are acquainted with the field in which the scientist has worked; but what concerns the evolution of his scientific thought can be given to the scientist himself. In accordance with the request by the chairman of the Chicago Section, A.C.S., Dr. J. C. Morrell, I shall attempt to draw a brief "*chemical tree*" of my life, which was planted by me some 37 years ago, and which has grown with the aid of some special nourishing processes which are called "*catalytic reactions.*"

First of all, I will show you how my first scientific thought came about. This thought was destined to give birth to many new reactions which take place under special conditions in the presence of special substances, which remain unchanged during the process, and which, since the time of Berzelieus, have been named *catalysts.*

Wanting to obtain for my experiment the hydrocarbon butadiene from amyl alcohol, I have used, in view of the high temperature necessary for the decomposition of the alcohol (600° C.), instead of a porcelain tube an iron one as it has been employed by my friend, Professor Thiele. I obtained some butadiene, but since in this reaction only a small quantity of this gaseous hydrocarbon is obtained, I became interested in finding out the composition of the liquid products collected in the receiver. I set myself a problem to find out whether, perhaps, the gas butadiene polymerized under the conditions employed, or, maybe, part of the alcohol does not undergo the decomposition. Prior to this no one has raised this question although great chemists have studied this reaction.

The investigation of the liquid gave some very surprising results: It consisted mainly of isoamyl aldehyde, while the gas analysis showed the presence of up to 75 per cent hydrogen. In a parallel experiment carried out by me in a glass or porcelain tube no isoamyl aldehyde was obtained and only very small quantity of gases. This experiment and others, using different alcohols, were carried out by me 37 years ago, and in January, 1901, I gave a report at the Russian Physico-Chemical Society and sent an article to the Berichte der Deutschen Chemischen Gesellschaft. The latter appeared in March 1901, before the appearance in Comptes Rendus of the first report by Sabatier and Senderens on the hydrogenation of benzene. From the very first experiments I have seen that the reaction discovered by me is a *catalytic dehydrogenation* reaction and iron is a catalyst for this reaction. The reaction is the reverse of the catalytic hydrogenation reaction, discovered by Sabatier and Senderens, in which the catalyst is reduced nickel, first proposed by them.

Aside from the fact that this reaction of dehydrogenation of alcohols has given a new method to obtain catalytically aldehydes and ketones, the discovery of this reaction has changed deep-rooted conceptions on the decomposition of organic compounds.

Forty years ago we were taught that if organic compounds are treated above 350° C. they break up into fragments, the character of which does not follow any set law. Therefore, the character of the products of pyrolysis and of the dry distillation of organic compounds should not depend upon the walls of the container where this process takes place. The above mentioned experiments have shown that this is not true. We are able to direct the reaction of decomposition of various organic compounds along a definite path even though the reaction is carried up to 600° C.; but, every time, we must introduce into the sphere of the reaction specific substances—catalysts.

These wonderful substances must possess the property of not changing during the time they are in the sphere of the reaction, and, even if they do lose their activity, they must be easily regenerated and return to their former state. Only those scientists can be looked upon as the discoverers of a new catalyst who can experimentally prove that with the aid of their catalyst the given reaction can be carried out a tremendous number of times and, as one can say, the life of the catalyst will be a long one.

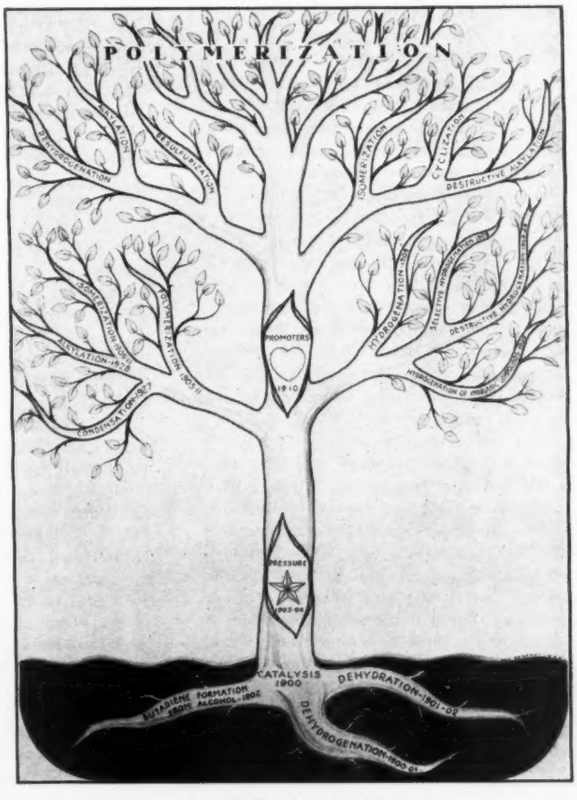
From the very first days of my research in catalysis I saw in catalytic reactions the same chemical processes as take place in normal chemical reactions. For the choice of the catalyst for the given chemical reaction I have always tried to compare the chemical properties of the compounds taking part in the reaction and of the catalyst. I do not think that I took the wrong point of view, otherwise I would not have been able to grow the chemical tree which I allow myself to present to you now.

Roots of Tree

I think that the roots of my chemical tree are the following catalytic reactions:

1. Dehydrogenation of alcohols—the removal of hydrogen from them and their conversion into aldehydes and ketones.
2. Dehydration of alcohols—the removal of water from them and their conversion into olefins.
3. Conjunct reaction—dehydrogenation and dehydrogenation and dehydration, for example, the formation of butadiene.

All these reactions have found wide application in industry. It is interesting to note that when I was shown the Shell Co. plant in California for the catalytic production of acetone and methyl ethyl ketone which was carried out with the aid of (brass) a catalyst discovered by me 35 years ago; the engineer who showed me the plant was



Ipatieff's chemical tree

*Before Chicago Section, American Chemical Society dinner on his seventieth birthday.

absolutely sure that the Ipatieff who discovered this process had been dead for quite some time.

When the influence of catalysts upon the course of the decomposition of organic compounds was established with certainty, I gave my attention at once to the necessity of investigating these catalytic reactions in a closed space in order to study them from the viewpoint of chemical kinetics and to solve the question of their reversibility. Besides it was extremely interesting to study the influence of the new factor, pressure, upon the course of catalytic processes.

Catalytic Reactions

The study of catalytic reactions at high temperatures and pressures encountered great difficulties at this time (1901-1903) because it was impossible to find an autoclave in Russia or abroad which would permit work at 400-500° under pressure up to 400 atmospheres. The autoclaves of that time, made for pressures of 25 to 50 atmospheres, could not be used with safety even for such small pressures. By the end of 1903, after a series of attempts, such an apparatus, or a bomb, was constructed. It had such a safe closure that the investigation of a variety of catalytic reactions at high temperatures and pressures could be conducted safely. In this bomb several thousand experiments were carried out. For laboratory work the closure proposed seems to be the safest and most satisfactory.

The study of catalytic reactions under pressure at high temperatures immediately gave very valuable results. First, it was shown that many catalytic reactions are reversible at high temperatures and that it is possible to observe the intermediate phases of the reaction although such observations are impossible at ordinary pressure.

Under pressure the process of hydrogenation proceeds with much greater velocity and it is possible to hydrogenate organic compounds which decompose under ordinary pressure at the necessary temperature. For the first time it was ascertained that hydrogenation proceeds in both liquid and solid phases (hydrogenation of salts), and in aqueous solutions.

The introduction of the pressure factor into catalytic reactions at high temperature made hydrogenation possible on a plant scale. Besides this it was possible to investigate many reactions from a kinetic standpoint because of the possibility of following the course of the reaction by pressure readings on the manometer. Thanks to this method for the study of reactions of organic compounds under pressure, it was possible to investigate the effects of temperature, pressure and catalyst in very important reactions, which were checked later by other workers and operated on a plant scale for obtaining products valuable for the chemical industry.

The factor of pressure which I introduced in the laboratory and was later used in the industry became the guiding star which shone upon my path to further discoveries in the field of catalysis. Turn your attention to the different types of hydrogenation of organic compounds which one can now carry out with the aid of high pressure. Would it have been possible to hydrogenate solid salts of acids and organic compounds which decompose on treating without pressure?

In experiments under pressure an especially interesting observation was made that organic compounds decompose under pressure without carbon formation, particularly if hydrogen is present. My experiments on destructive hydrogenation have proved valuable to the work of Bergius, who applied my method of high pressure to obtain liquid fuel and gasoline from resins and certain types of coal.

I have been often asked why it is that, possessing all the facilities, have I not carried it out? I can only say that one man can not do everything —may God help him to aid others in the work. Recall the classical work of Pasteur on fermentation where he has shown that fermentation proceeds with the aid of living organisms and without those it does not take place.

However, some 20 years later, Buchner has proven that the zymase extracted from these ferments brings about the same effect and living cells are not required.

On the other hand, in countries such as Russia and the United States the supply of liquid fuels is so great that the thought of converting solid fuels into liquid ones has not entered anybody's mind. It is only the great chemists of the countries with a low petroleum supply (Berthelot, France, and Emil Fischer, Germany) who could have thought about this problem before the appearance of the first Bergius patents in 1913.

In 1908, I applied high-pressure methods to the study of reactions of inorganic compounds. At the beginning of the investigation with aqueous solutions of metallic salts, it was observed that pressure and temperature had an enormous effect upon the course of the reaction. I was the first to succeed in separating metals such as copper, nickel, cobalt, tungsten, lead, cadamium, zinc, etc., from their solutions by means of hydrogen.

Thanks to the investigation of reactions of inorganic compounds under pressure it was possible to separate metallic oxides, double salts, and silicates in excellently formed crystals and to effect the formation of kaolin.

Study of Oxidation

The study of oxidation processes with water under pressure led to the discovery of the oxidation of phosphorus by water with formation of phosphoric acid and pure hydrogen as the final products.

The study of catalytic reactions of organic substances at high temperatures and pressures is interesting also because, in all probability, it will lead to the explanation of many processes which occur with organic compounds in the depths of the earth. This concerns also the inorganic compounds. The pressure, temperature, and the character of the substances with which the decomposed organic substance comes in contact must influence the course of its decomposition and consequently various products must be obtained. It is possible that the investigation of catalytic reactions occurring at high temperatures and pressures will give the proper material for the clarification of the question of the origin of petroleum and will offer an explanation of various properties possessed by the different kinds of petroleum found in nature.

In 1910 while studying the hydrogenation of organic compounds, I noticed a very important fact that hydrogenation occurs especially favorably and at a lower temperature when a certain amount of another substance is added to the catalyst. This substance, often called the promoter, helps the reaction, although it is not able to catalyze the hydrogenation alone. Its help comes through a catalytic side reaction which it produces. It was found possible to explain such reactions by the joint action of catalysts and to predict when substances might be promoters for hydrogenation. However, it was known a long time ago that the addition of certain substances in catalytic reactions accelerates the process, though nothing was known about hydrogenation processes at high temperatures and pressures either in literature or in patents up to 1910.

In our chemical tree I show this discovery in the field of catalysis in the form of a *heart*, because the introduction of promoters complicates still more the question of chemical catalytic reactions and possibly may help us in the interpretation of their conjunct action.

This discovery has received a very extensive application in the laboratory research as well as in industrial practice.

On the basis of past research my chemical tree does not cease to grow branches, on which, as you see, there are buds which may bloom soon and give valuable fruits. Many of you are familiar with the new catalytic reactions which my colleagues are working upon to apply them for the petroleum industry. All these reactions are closely bound together and their study will undoubtedly lead to the further introduction of these new catalytic reactions into

(Continued on Page 16)

A DISTINGUISHED GATHERING

A new world of chemistry, in which reactions which now take months can be carried through in a few hours, to make new and useful products, was explained to an audience of 1,500 chemists, educators and business leaders at the Stevens Hotel, Chicago, November 26, by Professor Vladimir N. Ipatieff, director of chemical research of Universal Oil Products Co., Chicago, and inventor of a process for making an entirely new kind of gasoline.

Professor Ipatieff was the guest of honor at a dinner-meeting of the Chicago section of the American Chemical Society, in celebration of his seventieth birthday.

The U.O.P. catalytic polymerization process, now producing millions of gallons of antiknock gasoline from petroleum gases formerly wasted, is a present important development from Professor Ipatieff's researches, which extend over the past 35 years. Isooctane, a new motor fuel now being produced in quantity and which doubles the speed of airplanes, is another.

Catalysis is the method by which these chemical wonders are being accomplished. Catalysts are substances which induce and speed up chemical reactions of various substances without themselves taking part in those reactions.

Professor Ipatieff was introduced by H. J. Halle, president of Universal Oil Products Co. The dinner ended with an epilogue by Dr. Harrison E. Howe, editor of Industrial and Engineering Chemistry.

At the meeting Professor Ipatieff presented his paper, "Catalysis—the Chemistry of the Future," and was followed by Dr. Homer Adkins of the University of Wisconsin, who discussed "Ipatieff's Method of Hydrogenation." Thomas Midgley, Jr., inventor of Ethyl Gasoline, and vice president of Ethyl Gasoline Corp., discussed "The Philosopher's Stone of Today."

Dr. J. C. Morrell, chairman of the Chicago section of the American Chemical Society, presided. Among other distinguished guests were:

J. G. Alther, vice president, Universal Oil Products Co.; Dr. Walter Dill Scott, president of Northwestern University; Dr. D. C. Jackson, Jr., president of Lewis Institute; Dean H. T. Heald, acting president Armour Institute; Dr. Harry McCormack, professor of chemical engineering, Armour Institute; Gustav Egloff, Universal Oil Products Co.; M. A. Hines, department of chemistry, Northwestern University; Roger Adams, University of Illinois, former president of American Chemical Society; Dr. Paul Haensel, Northwestern University; Rene Weiller, consul general of France, Chicago; E. H. Volwiler, vice president, Abbott Laboratories; Edward C. Elliott, president, Purdue University; Edward Bartow, department of chemistry, University of Iowa; Dr. K. Fajans, University of Michigan; H. H. Willard, professor of chemistry, University of Michigan.

Magnetometer Has Many Uses in Geophysical Exploration

By K. H. SCHMIDT
Engineer, American Askania Corp., Houston, Tex.

It is generally realized that all geophysical methods have their limitation and that one or the other, or a combination of methods, may prove most suitable for the solution of any particular problem. The choice of a method may be based upon the following considerations:

1. Purpose of survey.
   (a) General reconnaissance.
   (b) Geophysical detail.
2. Geology of the area.
3. Economic factors.

With these considerations a method of attack for anyone who wishes to employ geophysics as

Taking magnetometer reading

an aid for the solution of their geological problems may be planned.

Purpose of Survey

(a) *General reconnaissance:* This may be defined as the search for areas having structural conditions favorable for the accumulation of oil and gas in commercial quantities. Here the prime factor of importance is the speed with which large sections of land may be "swept" out, and the cost per unit area of survey, which should be as small as possible, since there is only a possibility of return on the investment. Also of major importance is the fact that only anomalous conditions are being searched for and it is not necessary to obtain minor configurations at this time, hence any method could be used for this purpose. Considering the elements of economy and speed, the logical rating of the choice of a method would be (1) magnetics. (2) gravity, (3) seismic. The electrical method is omitted in this discussion.

(b) *Geophysical detail:* This means employment of geophysical methods to such an extent that all possible information as to subsurface conditions, by any particular method, is obtainable. Investigations of this degree may be a result of the desire for more information on known geological structures, or on anomalous conditions interpreted as a reflection of structure as found by general reconnaissance surveys; the ultimate purpose being to make a proper location for a test well.

When this detail is desired the choice of a method is ordinarily not a question of how rapidly the work can be completed, except in such cases where a strong lease play is being carried on, but rather depends on the type of data which will yield most information as to actual subsurface conditions, and as previously stated, it depends also on the budget allotted for this purpose.

The first element in this choice is governed by geological conditions and since areas which are investigated geophysically usually offer little in geological information the choice of a method is often quite difficult. If this is the case the logical choice would be again decided upon the economic factor, and would again be magnetic, gravity, and seismic. It should be borne in mind, however, that the definiteness of information may follow an entirely different rating, depending upon geological conditions, and may be the reverse order of seismic. gravity, and magnetics. This will be explained in the geological consideration.

Geology of the Area

The effect of geological conditions is such as to either limit or favor the adaptability of a method. This is best understood when we consider the ideal conditions for any particular method. The seismic method depends upon the propagation of elastic waves, as result from the explosion of dynamite. The actual travel of this energy is directly proportional to the mechanical condition of the medium; probably the most important factor being, in general terms, the density of the sediments. Knowing that the denser the formation the better the rate of propagation it may be easily understood the ideal sequence of beds for the seismic method is one where this factor increases with depth. Also for the employment of the reflection method key beds must be present which are able to reflect this energy, following the laws of optics, and which must also carry over some distance if reliable correlations are to be obtained.

The success of the gravity method depends upon the effect of structural conditions on the gravity field. This is also a function of density which results in either a mass excess or deficiency. A salt dome is lighter per unit weight than its enclosing sediments and therefore causes a deficiency. In this method it is not necessary to create an artificial field but measurements are rather an observation of a permanent condition.

Magnetic measurements are also taken in a field which is permanent and anomalies in the field are interpreted into geological structure. Local intensities of magnetism may be either increased or decreased depending upon the local feature and may be a result of differences of magnetic susceptibility of formations within the sedimentary column (true in areas such as the Gulf Coast and parts of California) or a result of the

Making ready to set up magnetometer in field

configuration of basement rock. Basement rock effects are valuable since large uplifts often cause a corresponding uplift in the sediments.

When the geology plays a leading part in the choice of a geophysical method magnetics is playing an increasing part, since it is now realized the small anomalies caused by uplifts, faulting, and thinning of beds, in the sedimentary column are sufficiently large to be located when the proper field procedure is used. The larger anomalies such as result from the conditions of basement rock, and intrusion of igneous plugs and the corresponding sedimentary uplifts (as in the San Antonio district), are easily found and interpreted.

An example of geology limiting and favoring methods is clearly shown when we consider the adaptability of methods in an area such as the Edwards Plateau in West Texas. Here a thick limestone outcrops on the surface, and since this is naturally of high density the seismic method is not practical since energy cannot easily reach lower formations, as it prefers this high-speed surface bed. In this particular area magnetic anomalies have been found to correspond very well with structure and so is, of course, much more suitable. Undoubtedly, the effect measured is largely basement rock.

Economic Factors

Quite often economic factors are of great importance since the amount which can be spent upon geophysical work is limited, hence it is necessary to choose the method which is most economical in operation and still gives dependable information.

It may be seen from the logic of the several reasons for the classification of a choice of methods, that magnetics play a very important part in geophysical exploration. It receives first place for general reconnaissance work; when geological conditions are suitable it may be successfully used for detailed work, and furthermore it rates high in speed of operation, and what is probably more important, in economy.

Quite often the choice of a geophysical method is based upon the past success and present amount of work being done. The large number of magnetic successes in the past is evidenced by the articles and reports which have been published in trade journals, for a number of years and at the present time. This method is even now increasing in use throughout the country. Operating out of the Houston area alone are more than 18 instruments. More than 30 instruments are in use in the Mid-Continent.

In conclusion, the magnetic method is worthy of the consideration of not only major companies, but also the independent operator who wants a method that can be used for practically all purposes at small cost with speedy operation and ease in which the data may be interpreted into useful geological information for the location of commercial deposits of oil and gas.

Shutdown in East Texas Cuts Off 69,000 Bbls.

HOUSTON, Tex., Nov. 29.—Reflecting the Sunday shutdown schedule, daily average allowable production of the East Texas field for the week ended Saturday, November 27, was 416,974 bbls., a drop of more than 69,000 bbls. from the daily production of the preceding seven-day period, according to Railroad Commission figures. Not since November of 1934 has the daily average production of the field for any one week been that low.

Along with the drop in oil production for the week was a substantial reduction in the daily average water output. On the basis of a water production of more than 75,250 bbls. from the reported 3,026 wells making water, the one-day shutdown of these wells effected a cut of 10,750 bbls. in the daily average production of water for the week, bringing the average down to 64,500 bbls. daily.

Including the water production, total daily average fluid withdrawal from the reservoir totaled 481,474 bbls. Although this exceeded the calculated critical withdrawal rate of 450,000 bbls. by 31,474 bbls., it represented a reduction of 80,375 bbls. in the daily average fluid withdrawal reported the previous week, an important factor in rectifying the unfavorable reservoir conditions which have developed recently in the field.

The second Sunday shutdown, November 28, like the first, was carried out systematically. Bottom-hole pressure tests were repeated in each of the 91 key wells.

None of the data obtained in any of the Sunday shutdown surveys will be made known by the Railroad Commission pending completion of all the tests extending over the four Sunday shutdowns. Consequently, any benefits the reservoir is deriving from the shutdowns cannot be determined until that time. In the meantime, operators as a whole are demonstrating a readiness to cooperate with the Railroad Commission in its efforts, and are assisting not only in the shutdown of their wells but also in the actual taking of bottom-hole pressures in key wells assigned to them.

The list of wells authorized to produce Sunday to provide necessary gas for domestic use of camps and towns depending on the East Texas field for their supply was increased to approximately 6,700. On the preceding Sunday the list contained 6,394 wells, according to revised figures. These wells, which restrict their Sunday production to a maximum of one day's allowable, are required to lose the equivalent during the remainder of the week. On the basis of a gas-oil ratio of 350 feet per barrel and an oil allowable of 20 bbls. per day per well, the 6,700 wells produced approximately 46,900,000 feet of gas Sunday. They represented more than a fourth of the total of 24,036 wells reported in the field, as of Saturday, November 27. That more wells will be permitted to produce on Sunday if additional gas is needed is assured by the commission, although needs are limited to domestic use.

Due to new wells brought in, allowable production of the field Saturday had been increased to 487,142 bbls., as compared with 486,177 bbls. the preceding Saturday, prior to the first Sunday shutdown. During the week 49 new wells were brought in, but two of these were offset by wells going off production. Of the 24,036 wells reported producing Saturday, 18,164 wells were limited to the marginal allowance of 20 bbls., an increase of 32 for the week. Submarginal wells remained at 322 with an allowable shortage of 2,957 bbls.

With all data on the Sunday shutdown bottom-hole tests being withheld by the Railroad Commission, East Texas operators now are looking forward to the monthly statewide proration hearing December 15, at which, it is expected, all the findings, with possible recommendations for future proration procedure in the field, will be presented.

20 cents

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CATALYSIS

(Continued from Page 14)

the technology of petroleum. One of these reactions—polymerization of cracked gases—has already been put into commercial operation, and a number of plants in the United States as well as in other countries are producing high grade gasoline with a very high octane number, this gasoline being extremely valuable in the development of high speed engines especially in the field of military aviation.

Having finished my short description concerning the development of my chemical thought in the field of catalysis, I allow myself to point out one idea which, I believe, would be valuable for the future development of catalytic reactions.

Most of chemical theoretical investigations carried out in the silence of scientific laboratories, sometimes with a purely scientific purpose, sooner or later are utilized by the industry and thus serve humanity; such is the lesson that history teaches us. However, these discoveries must also serve science in facilitating the study of it and its methods in universities and technical institutes. The development of catalysis during the past 35 years has made it much easier to obtain many classes of organic compounds, and catalytic methods have replaced the older methods used in the laboratory. The reactions which formerly required a period which ran into days and sometimes months, can now be carried out with the aid of catalysis within a few hours. Don't you think that the time has come when serious attention should be paid to the nature of the teaching of organic and inorganic chemistry—replacing the out-of-date reactions by new catalytic ones and trying to better acquaint the students with the general phenomena of catalysis along with the more accepted hypotheses?

To determine the structure and functions of the different classes of chemical compounds we must keep only those of the older reactions which are absolutely necessary for that purpose concerning the methods of synthesis of different compounds new catalytic methods should be introduced. There is no need to crowd the textbooks, especially in organic chemistry, with reactions which no one ever uses at the present time and which are absolutely unessential to the understanding of the fundamentals of a scientific subject.

My opinion is that this will make it easier to master the courses in chemistry and the younger generation will be introduced to new ideas and will thus develop the *field of catalysis* for the chemistry of the future.

Large West Virginia Area Underlain by Oriskany

By ROBERT C. LAFFERTY*

Commercial oil and gas possibilities from the Oriskany series of the Devonian in West Virginia was first demonstrated in 1918, but no commercial production was developed until 1930. In 1934-35 three fields, now having a proven area of 43,000 acres, were opened in Kanawha County.

The Oriskany sandstone is a sheet deposit in West Virginia, and underlies roughly three-fourths of the state from its outcrop along the eastern edge before it thins and disappears in the western portion. The sand ranges from probably over 200 feet in the northern portion to an average of 40 feet in the producing fields. A very definite water table is present on the eastern margin of the gas belt. This is apparently trapped water, as rock pressures in the Kanawha County fields do not indicate hydrostatic control. The sand varies from a coarse grained (1.+ MM) to a fine grained (0.1 MM) sand. Normally, the upper part of the sand is much coarser than the middle or lower section, however, alternate coarse and fine bedded sand is very common and is very suggestive of cross bedding. Lime is the main cementing material in the sand, although near the western limits of deposition silica is the predominating cementing medium. Porosity over the proven fields ranges from 6.8 per cent to 11 per cent. Open flows in the various fields range from 46,000 feet to 22,000,000 feet, with rock pressures varying from 1,100 pounds to 1,940 pounds. Carbon dioxide and distillate are present in the gas in these fields. The carbon dioxide content of the gas increases in wells high on the structure, while the distillate decreases. To date, 21 dry holes and 124 gas wells have been completed, and a daily open flow of 625,725,158 feet developed. Anticlinal structure is of primary importance for production, but proper sand conditions are also necessary. Due to convergence, anticlines, as expressed on the deeper horizons, are shifted from their surface or shallow subsurface location. The reflection seismograph has been a very valuable aid in checking the positions of these axes and will, no doubt, help materially in areas where water is thought to be present.

*Assistant Geologist, The Owens, Libbey-Owens Gas Department, Charleston, W. Va.
To be published in A.A.P.G. Bulletin, March, 1938.

Introduction

The Oriskany group was classified and subdivided by the Maryland Geological Survey and, where applicable, their correlation was accepted and used by the West Virginia Geological Survey.[1]

In West Virginia the Ridgely sandstone member of the Oriskany is correlative with the Oriskany sand of the driller and is the main producing member of this series. Recently, commercial gas production has been encountered near Uniontown, Fayette County, Pennsylvania, near the crest of the Chestnut Ridge anticline in the Huntersville chert member, which directly overlies the Ridgely (Oriskany) sandstone. The Huntersville chert has several sandy phases, but until the recent production near Uniontown, has not been given much consideration as a commercial gas horizon.

A.A.P.G. — Read at Pittsburgh meeting, October 15.

Several scattered dry holes were drilled through the Oriskany formation in the state prior to the recent discovery of commercial gas in Kanawha County. Well No. 4670 of the Hope Natural Gas Co., drilled in 1918, on the Volcanic Oil & Coal Co. property in Wood County, West Virginia, near the crest of the Burning Springs anticline, encountered gas in either the top of the Huntersville chert "Corniferous" or in the Oriskany sandstone. This well is variously reported as having an original open flow of from 200,000 to 2,000,000 feet. Water was encountered below the gas and the well was abandoned. This well is the earliest test I have record of that demonstrated possibilities of commercial production in the state from the Oriskany group.

Following this early well, no commercial wells were developed in the Oriskany until September, 1930, when United Fuel Gas Co. completed its No. 4067 (No. 1, Figure 2) on the Black Band Coal & Coke Co. property on the waters of Davis Creek, Loudon district, Kanawha County, high on the north flank of the Warfield anticline. In this well 527,000 feet of gas was encountered in a white sandstone 90 feet below the top of the "Corniferous Lime." This white sand is correlative with the Ridgeley sandstone member of the Oriskany and was the first commercial Oriskany (Ridgely) gas well developed in West Virginia.

During 1932-33, Grosscup and others drilled three small gas wells on the waters of Cooper Creek in Elk district, Kanawha County, on or near the crest of the Milliken anticline. These wells produce from a white sand encountered from 102 to 115 feet below the top of the "Corniferous Lime" and had original open flows ranging from 46,000 to 143,000 feet. Due to the economic depression and the small open flows, these wells attracted very little attention. With the completion in September, 1934, of W. L. Burdette No. 1 (No. 2, Figure 2) by Grosscup and others producing oil and gas from

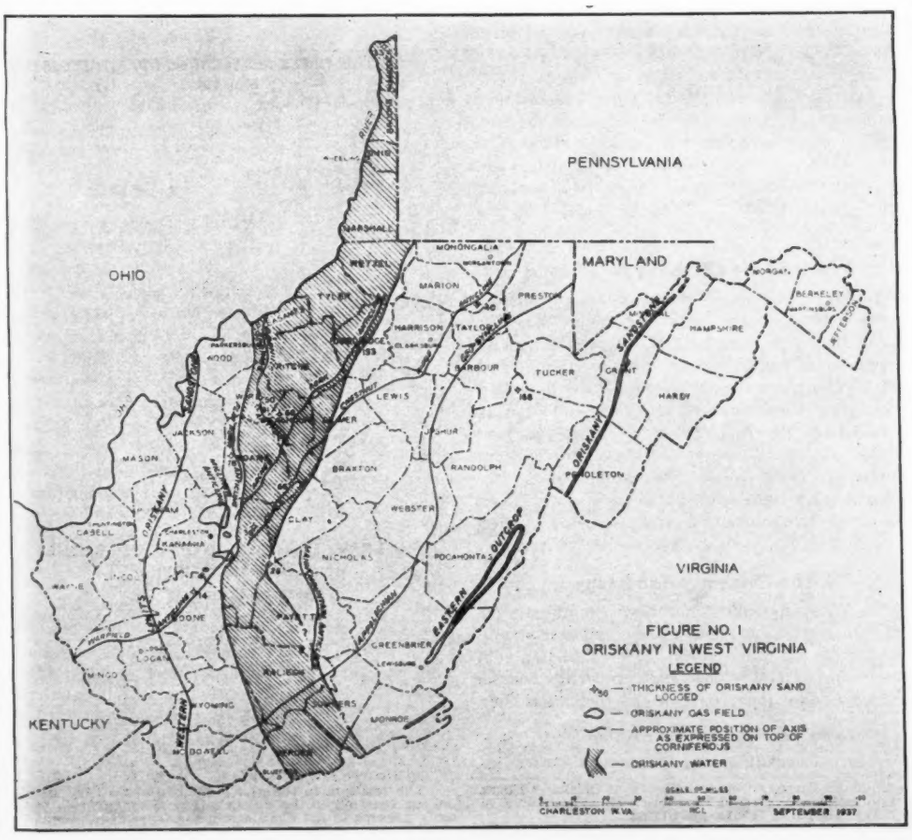
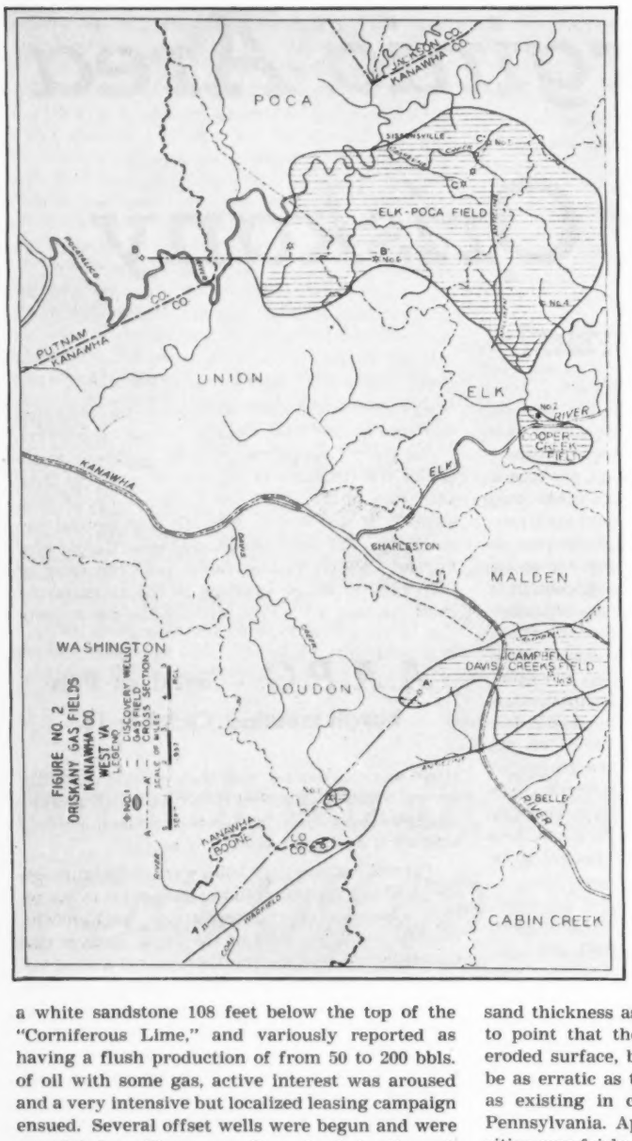


FIGURE NO. 1
ORISKANY IN WEST VIRGINIA
LEGEND
— THICKNESS OF ORISKANY SAND LOGGED
— ORISKANY GAS FIELD
— APPROXIMATE POSITION OF AXIS AS EXPRESSED ON TOP OF CORNIFEROUS
— ORISKANY WATER

[1]Paul H. Price, "The Oriskany Group (Areal) of W. Va." A.G.S. Symp. 1937, pp. 5-13.



a white sandstone 108 feet below the top of the "Corniferous Lime," and variously reported as having a flush production of from 50 to 200 bbls. of oil with some gas, active interest was aroused and a very intensive but localized leasing campaign ensued. Several offset wells were begun and were completed as either gas wells or dry holes through the Oriskany sand.

In March, 1935, Godfrey L. Cabot, Inc., completed its No. 807 (No. 3, Figure 2) on the Campbells Creek Coal Co. property on the waters of Campbells Creek, Malden district, Kanawha County, encountering the Oriskany 99 feet below the top of the "Corniferous Lime." This well had an initial open flow of 2,182,000 feet and opened the Campbells Creek field. As this well was several miles south of the Burdette well, and as most of the intervening territory was held by shallow producing wells, no extensive leasing program was possible. However, considerable excitement and some scattered leasing ensued.

With the completion of Copenhaver Heirs No. 1 (No. 4, Figure 2) by Columbian Carbon Co., on Lick Branch of Little Sandy Creek, Elk district, Kanawha County, with an open flow of 2,630,000 feet from the Oriskany in an area of small ownership properties, an active and widespread leasing campaign and drilling program started. At the present time practically all of the major companies are drilling offset locations and very little wildcat drilling is being done. Following is the total proven area developed to date, as yet the limits of the three fields have not been completely defined.

	Acres
Cooper Creek field	1,800
Campbell-Davis Creek field	9,600
Elk-Poca field	31,600
Total proven area (Sept. 30, 1937)	43,000

On Figure 1 the eastern outcrop of the Oriskany (Ridgeley) sandstone is shown. This is taken from the "Oriskany Sand and Devonian Shale" map prepared by the Appalachian Geological Survey.[2] The western limits of the Oriskany is also shown. This western limit is difficult to define due to lack of drilling as well as lack of accurate information and well cuttings from past drilling. No doubt this western limit will be modified when additional data is available. Possibly outliers and isolated fields west of the main limits may be discovered, such as have been found in Ohio.[3]

Commercial gas production has been found in Columbiana County, Ohio, as well as in Beaver County, Pennsylvania, near the tip of the West Virginia Panhandle and definitely proves the existence of the Oriskany sand sheet in the northwestern portion of the state. In Doddridge County the test of Columbian Carbon Co. logged 153 feet of Oriskany sand. It is apparent that, roughly, three-fourths of the state will be underlain with Oriskany sand (Ridgeley) and that it will have a thickness of possibly over 200 feet in the northern portion of the state, gradually thinning and disappearing in the western portion. On Figure 1, several scattered wells throughout the state where the Oriskany is definitely present are shown with the sand thickness as logged. There is some evidence to point that the Oriskany was deposited on an eroded surface, but deposition does not appear to be as erratic as that described by Paul D. Torrey[4] as existing in central New York and northern Pennsylvania. Apparently the Oriskany sea deposition was fairly regular over areas of slight structural relief, but was truncated or deposited as a relatively thin sheet over areas of high structural relief, such as the Warfield and Burning Springs anticlines.

Water in the Oriskany Sandstone

Figure 1 also shows the approximate position of the Oriskany water table throughout West Virginia. Evidently, this belt of water is somewhat similar to the rim water encircling productive anticlines in northern Pennsylvania and southern New York. Water encountered in some wildcat wells has raised as high as 3,000 feet in the hole, but tests to the east of this water belt have proven completely dry, with lime cement sand. Apparently, there is little connection between this water and the Kanawha County Oriskany gas fields, as rock pressures do not indicate hydrostatic control.

The Oriskany Sandstone

The Oriskany sandstone, when examined from well cuttings, is a clear glassy appearing sand varying from a coarse grain (1. + MM.) to a very fine grain (0.1 MM.). The sand is normally coarser grained in the upper part of the formation than in the middle or lower part. As there is considerable variation from well to well with alternate coarse and fine-grained sand appearing without any definite order, it is apparent that in the area of our present gas fields, the Oriskany has been deposited in relatively shallow water and has at least been locally cross-bedded. Grains are normally subangular to subround, with occasional frosted grains scattered throughout the sand. Occasionally small pebbles 3. MM. and 6. MM. in size are noted, but to date no definite conglomeratic horizon has been found.

A "Break" normally occurs near the middle of the sand and varies from a few feet of extremely lime cemented sand to a shaly limestone. In the eastern portion of the Elk-Poca field the "Big Pay" comes below this break, in sand varying from .35 MM to .4 MM in size. In the northern and western part of this field, the pay comes above this break in a somewhat coarser sand. Some few wells have logged a third pay, but this lower gas zone is apparently not as regular as the upper two.

Cementing material in this sand is usually lime, although dry holes drilled near the western limits of the sand have considerable silica cement present. Porosity and the amount of lime cementing material in the sand vary greatly over the field. Usually wells high on structure have more lime cementing material than wells farther down on the flanks. Tests have been made on several scattered wells and porosity figures range from 6.8 to 11. per cent.

Immediately overlying the Ridgeley sandstone member of the Oriskany is the Huntersville chert,

[2]"Oriskany Sand Symposium" (1937).

[3]R. J. Lockett, "The Oriskany Sand in Ohio,' Appalachian Geological Society Symposium (1937), pp. 61-64.

[4]Paul D. Torrey, "Natural Gas from Oriskany Form. in Central New York and Northern Pennsylvania," A.A. P.G. Bul. 15, No. 6 (1931), pp. 671-88.

SUMMARY OF DRILLING BY FIELDS

Kanawha County, W. Va.—September 30, 1937

	Dry holes	Drilling wells and active locations	Gas wells	Open flow developed
Cooper Creek	5	5	8	*18,017,000
Campbell-Davis Creek field	9	7	38	69,229,118
Elk-Poca	7	93	78	538,479,040
Total	21	105	124	625,725,158

*25 bbls. oil per day.

Seven other deep tests are drilling throughout the state, but are outside of the Kanawha County fields.

COOPER CREEK FIELD CRUDE OIL ANALYSES*

Map No. 2

Crude, per cent—	
Gravity	42 1
Color, O.D.	12
Appearance	Amber
Sulfur, per cent	0 19
Crude dist. per cent 410	28
Cut gravities (25° C.)—	
6	54 5
7	52 0
8	49 9
9	46 8
10	43 0
11	42 6
12	41 0
13	39 0
14	37 7
15	35 9
16	34 6
Bottoms	30 2
Additional tests on bottoms—	
Crude, per cent	21 0
Flash, °F.	555
Fire, °F.	635
Pour, °F.	75
Vis. grav. const.	788
Carbon res.	0 35
Sulfur, per cent	0 15
S. U. Vis/210° F.	103

*Tucker "Deep Well Records" (1936) Pg. 178 W. Va., Geo. Survey.

FRACTIONAL ANALYSES OF ORISKANY DISTILLATE (DRIP GASOLINE)

Kanawha County, W. Va.

	Campbell-Davis Creek field	Elk-Poca field	Commercial second grade gasoline
Ethane	.11%	.24%	.00%
Propane	1.39	1.09	.00
Iso-Butane	.56	1.17	2.62
N-Butane	1.71	3.26	7.18
Iso-Pentane	1.70	.74	1.46
N-Pentane	4.17	5.98	8.68
Hexane and heavier	90.36	87.52	80.06
A.P.I. gravity of hexane and heavier residue	63 4°	63.6°	56.7°

The distilate in the above fields gives a very strong sulfur reaction to the doctor's test. The sulfur is probably present in the distillate in the form of mercaptans

also of Oriskany age. In New York and Pennsylvania this limestone, coming below the Marcellus shale and above the Oriskany (Ridgeley), is considered of Onondaga age. Whether the Onondaga disappears in the overlying Marcellus or grades into the Huntersville chert, is not definitely established. However, working purely from lithology, the writer knows that this section in the Kanawha County fields can be correlated with the section in Bradford County, Pennsylvania. This section is predominantly an extremely cherty limestone or more proper a limy chert, with several sandy and glauconitic zones that can be readily correlated. In the upper portion the chert appears to be secondary replacement, but in the middle and lower portions appears to be bedded. Several wells have logged shows of oil and gas in the upper portion of this member, but no wells in the state have been commercially productive.

Kanawha County Oriskany Fields

In this preliminary paper information is drawn principally from company files, although much information has been obtained from geologists of other companies interested in this area who have aided through mutual exchange of thought and data. A detailed treatise can be given at a later date when additional information is secured and is no longer considered confidential.

The producing area developed to date in Kanawha County is roughly divided into three fields, these are shown on Figure No. 2. As mentioned previously, the limits of these three fields have not been completely defined. At present, they embrace 43,000 acres and extensions of these fields will, in all probability, bring the total proven area to 75,000 acres. These very arbitrary names are used merely for convenience in writing. The Elk-Poca field is known locally as the Aaron Fork, Grapevine, Cooper Creek field, etc. The Cooper Creek field, as used in this article, could very easily embrace the southern tip of the Elk-Poca field, due to similar rock pressures, similarity in gas analyses, structural conditions, etc., but due to an intervening dry area it is shown as a separate field. Similarly, the Campbell-Davis Creek field will probably embrace an area, when limits are defined, that extends beyond these drainages but these names are in such common usage it was thought best to use them.

Structure

Due to convergence in the thick Devonian shales, anticlinal structures are shifted on the deeper formations from their surface or shallow subsurface positions. The shifting is very slight on anticlines with north-south axis, but on northeast-southwest anticlines the shifting may be as great as 2 miles. Figure No. 2 shows the axis of the Milliken anticline as projected by use of a convergence map from a shallow subsurface structural map to the top of the "Corniferous." Due to a complicated north-south and northeast-southwest fault pattern, this axis is considerably distorted and the structure is apparently more of an underthrust fault than a true anticline, having extremely rapid dips on the east side of the field, with a relatively flat terraced crest as shown by cross sections B-B′ and C-C′.

ORISKANY GAS ANALYSES
Kanawha County, W. Va.

Fractional analyses by W. Va. Geological Survey—	Cooper Creek field	Campbell-Davis Creek field		Elk-Poca-field-		
	†Map No.2	*Map No. 1	*Map No. 3	*Map No. 4	*Map No. 5	†Map No. 6
Methane	83 08	85 35	84 04	87 90	85 60	87 26
Ethane	10 51	6 24	7 59	7 38	7 16	6 58
Propane	3 70	2 00	2 37	2 26	2 28	2 27
Iso-Butane	.17	.25	52	12	.36	33
N-Butane	1 11	.61	66	85	.86	.80
Tetramethyl Methane		.07				
Iso-Pentane	.15	07		11	17	15
N-Pentane	30	.15	97	.26	.35	.29
Disopropyl	04	.01		.02	.00	.00
Dimethylpropyl Methane	01	07		07	.17	09
N-Hexane	15	07		09	.14	.14
Iso-Heptane	04	.04		01	.06	03
N-Heptane	05	.03		02	07	04
Octanes	04			02	18	06
Nitrogen	65	00	40	89	2 60	1.96
Carbon Dioxide	02	5 04	3 45	00	00	Trace
B.T.U. (30" Hg 60° F.)	1172	1067	1100	1112	1135	1116
Sp. Gr. (Calo. Air-1)	687	680	693	.651	671	652

*Data from company owning well.
†Data from Paul H Price, App. Geo. Symp. (1937). Pg. 72-80 "Analyses of Oriskany Gas in Kanawha County, V. Va., With My Interpretations."

Cooper Creek Field

This field was opened with the completion of W. L. Burdette No. 1 (Figure No. 2) by Grosscup and others in September, 1934. This well came in naturally and was variously reported as having a flush production of 50 to 200 bbls. This rapidly declined until the well settled at 22 bbls. and 200,000 feet of gas. Several other wells were completed ranging from 900,000 feet to 5,160,000 feet with initial rock pressure varying from 1,340 pounds to 1,490 pounds. This field is apparently a transition between the Elk-Poca field to the north and the Campbell-Davis Creek field to the south. Some small amount of distillate is produced with the gas, but nothing like the quantity produced in the Elk-Poca field.

With the exception of the southern edge of the Campbell-Davis Creek field, this field is more faulted and complicated than any other. The main axis can probably be drawn in a north-south direction roughly paralleling the Milliken, but this axis is hardly true due to the warping effect caused by faulting. The field, from gas deliveries and other indications, is very suggestive of small echelon structures.

Campbell-Davis Creek Field

This field was opened in March, 1935, by G. L. Cabot, Inc. with the completion of its No. 807 (No. 3, Figure 2) on the Campbells Creek Coal Co. property. Open flows throughout the field range from 260,000 feet to 7,787,000 feet, with rock pressure from 1,100 pounds to 1,295 pounds. The gas confined in this field is essentially a dry gas, as only a small amount of distillate is produced. This field differs materially from the Elk-Poca in that the gas contains a high percentage of carbon dioxide.

This field is traversed in a northeast-southwest direction by the Warfield anticline. The axis as shown is on top of the "Corniferous" limestone and was projected by use of a convergence map from a shallow subsurface horizon. Water is found on the south side of the field, but although the rock pressure of the field has fallen off to around 700 pounds has not appeared in any edge wells.

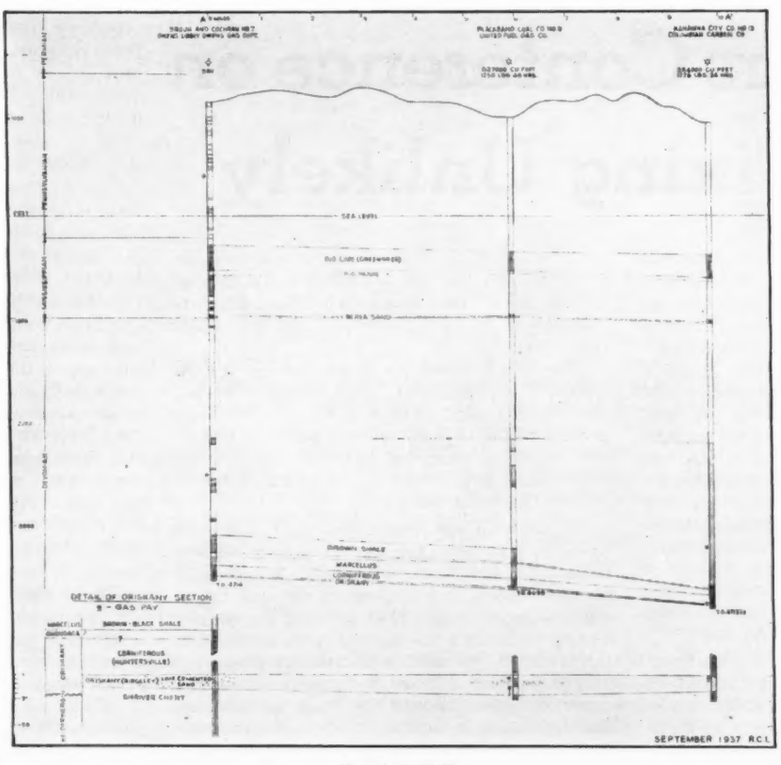
Elk-Poca Field

This field was opened by the completions of Copenhaver heirs No. 1 (No. 4, Figure 2) by Columbian Carbon Co. in August, 1935; D. A. Griffith No. 1 (No. 5, Figure 2) commenced by Ziebold and later purchased and completed by the West Virginia Gas Co. in April, 1936, and G. W. Facemeyer No. 1 (No. 6, Figure 2) by United Carbon Co. in November, 1936. Open flows throughout the field range from 2,000,000 feet to 22,000,000 feet with rock pressures ranging from 1,880 pounds to 1,940 pounds. In the southern tip of this field open flows range from 46,000 feet to 3,300,000 feet with rock pressures of 1,530 pounds to 1,750 pounds. Practically all of the wells in this field produce a distillate (gasoline) along with the natural gas. Some of the wells in the northern portion of the field yield as high as 700 to 800 gallons of distillate to 1,000,000 feet of gas produced. A slight trace of sulfur is found in this distillate, but is not present in the gas.

General Statement

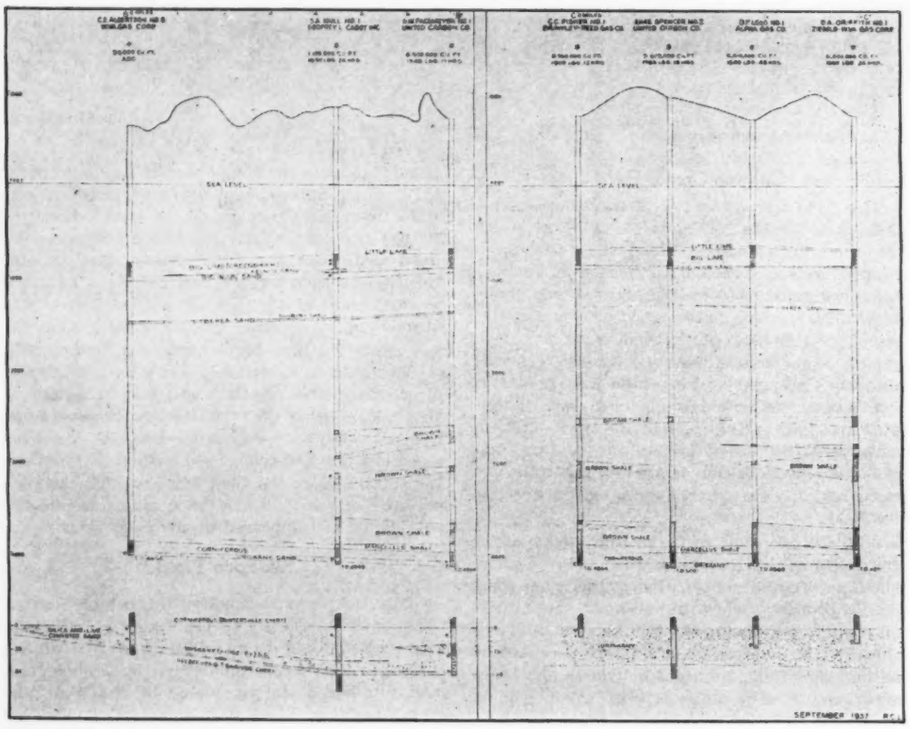
The Oriskany sandstone, where productive in the Kanawha County fields, varies from 11 to 60 feet in thickness with the pays coming from 1 foot to 28 feet below the top of the sand. Where the sand is of greater or less thickness so far it has proven nonproductive. This critical productive thickness is probably due to shoreline conditions during deposition.

As previously mentioned, anticlines as expressed on the "Corniferous," are shifted con-



Section A-A

siderably from their surface or shallow subsurface positions. On north-south anticlines this shifting is apparently very slight but on northeast-southwest structures the axis may migrate several miles, shifting toward the northwest. Anticlines that appear regular from surface and shallow subsurface mapping have been found, by the use of reflection seismograph surveying, to be faulted and generally more complicated than the early work indicated. In this respect it should be mentioned that the Facemeyer (No. 6, Figure 2) of United Carbon Co. in the western part of the Elk-Poca field, was the first commercial well in the state located purely on seismograph surveying. Reflection seismograph surveying has been a very valuable check on the structural attitude of the deeper horizons in West Virginia and should help materially in deep wildcat wells, especially in areas where water is thought to be present.



Section B-B *Section C-C*

Governors Conference on Price-Fixing Unlikely

A meeting of the governors of 21 oil states suggested by Governor E. W. Marland of Oklahoma for the purpose of discussing the present oil situation with the special consideration of price conditions, did not appear probable the first of the week. The blunt refusal of Governor James V. Allred of Texas to accept the invitation of the Oklahoma governor served to nullify whatever support the proposal might overwise have received.

The Texas governor whose state now has more than 40 per cent of the domestic crude oil production questioned the legal right of the state executives to hold the conference "to frankly discuss and deal with price fixing of crude petroleum and consequently its products," and added "even if it were not a violation of the law I would not care to be a party to doing something for these companies that cannot be done directly by them."

Governor Marland has expressed concern regarding a possible decline in posted crude oil schedules several times over the past few weeks. Last week he said "there is no reason why Texas, California, Oklahoma, Louisiana, Kansas and every oil producing state can't talk price." He indicated that it was the duty of the states to discuss the matter because "oil men are afraid to get together and talk price." He was quoted as saying that "the government can't put the states in jail for talking about price."

This was followed by an announcement from Colonel E. O. Thompson, Texas Railroad Commission member, that there would be no discussion of price at the January meeting of the Interstate Oil Compact Commission to which the principal oil-producing states, with the exception of Louisiana and California, belong.

"If we limit the production of oil to prevent waste we will have done all the compact contemplates," Colonel Thompson, who is chairman of the commission, said in pointing out that the interstate compact agreement between the oil producing states and the federal government does not permit the restriction of crude oil production for the purpose of fixing the price or creating a monopoly. He also cited the Texas statutes and court decisions in support of his contention that the Texas officials cannot participate in any price-fixing agreement.

This announcement on Friday apparently led to the decision on the part of Governor Marland to call a meeting of governors which would have no connection with the Interstate Oil Compact Commission. In his wire Sunday night to the 21 governors he said in part: "Several million barrels of oil have been added to surface storage over the past year. This entails waste.

Marland's Invitation

"This situation affects the price of oil. The price already is lower than the cost of production from many thousands of wells. A continuation of overproduction threatens still lower prices for our oil, and the consequent abandonment of thousands of our wells which cause underground waste.

"The known proven reserve of crude oil under our land is small, measured by the rate of annual consumption. The United States looks to the several oil producing states to conserve this great irreplaceable natural resource. We should not permit waste of any kind.

"If it is necessary to regulate production in agriculture, how much more necessary it is to regulate production of irreplaceable oil.

"This I conceive to be the proper function and duty of the government of oil producing states in the interest of the national defense and the general welfare.

"My suggestion is that the governors of all oil producing states confer at an early date and convenient place and discuss ways and means to prevent overproduction of oil, and ways and means of stabilizing the price of oil to prevent abandonment of wells and waste of our oil resources.

"In my opinion, such a conference may properly be held by the executive officers of the several oil producing states who have a responsibility to the United States to conserve our oil resources."

Allred's Reply

Governor Allred replied on Monday as follows:

"My dear governor: I have your telegram with reference to alleged conditions in the oil industry and proposing a conference to frankly discuss and deal with price-fixing of crude petroleum and consequently its products. You state in your telegram that such a conference could not be held by oil producing companies whose interest is solely in profit without possible violation of our antitrust laws but in your opinion may properly be held by the executive officers of the several oil producing states. So far as I am concerned this statement on your part answers your proposal for this conference.

"In the first place I know of no exemption of state officers for violating the federal antitrust laws and, in the second place, even if it were not a violation of the law I would not care to be a party to doing something indirectly for these companies that cannot be done directly by them.

"In all frankness, my dear governor, this gets back to the battle that has been constantly waged throughout the history of the oil industry, and particularly during our negotiations on uniform conservation measures to prevent physical waste. As I have always insisted, this is as far as the states can legally go, and morally I think it is as far as they ought to go. The oil consuming states and consuming public in general would have as much right to complain against a combination of officials in a few oil producing states to artificially fix the price as they would against individuals doing the same thing.

"In my opinion many fine things have been accomplished under the Interstate Oil Compact, which authorizes, however, cooperation in the matter of preventing physical waste.

"Under all the circumstances, and granting to you the right to a contrary opinion, I must respectfully decline to participate in the price-fixing conference you propose."

Washington Turning Toward Relief for Business Burdens

By HENRY D. RALPH

WASHINGTON, D. C., Nov. 29.—Aid to business has suddenly become the dominant motive both of congress and of the administration. In congress this is taking the form of demands for drastic revision, if not outright repeal, of the tax on undistributed corporation earnings, while at the White House it is manifest in a series of moves toward government economy and toward restoring confidence to business.

Apparently overwhelming majorities of both house and senate are for immediate tax revision, but the house committee on ways and means which must initiate all tax bills, encouraged by the president, is moving slowly and with deliberation in order to devise a practical measure which will not impair the treasury's revenues, at the same time lifting the load from business as much as possible.

NOT TO BE RETROACTIVE.—It appears, therefore, that there will be no new tax law until early in 1938, and it probably will not be made retroactive to effect 1937 corporation tax returns. To make up for the losses in the undistributed profits tax, the committee probably will propose a straight corporation income tax similar to, but perhaps slightly higher than, that in effect prior to 1936, and while this will naturally be a burden on corporations it is generally preferred by business men because it imposes no interference with management policies as does the tax on undistributed earnings.

PRESIDENT CONCERNED.—President Roosevelt's evident concern for business conditions is shown in his two latest messages to congress. In the first he recommends changes in the national housing act to stimulate the flow of private capital into home construction to revive this lagging field of activity, while in the second he recommends substantial reductions in federal aid to states for highway construction as a part of his determined efforts to reduce expenditures and balance the budget. Other steps toward economy may be looked for during the coming months, and the budget for 1938-39 to be submitted to congress in January will probably be much more conserving and encouraging than those for several years past.

The president's insistence that the new farm program be kept within the budget or else financed by new taxes is a part of this program. President Roosevelt's instructions to government purchasing agents to speed up the buying of commodities which will be needed during the balance of the fiscal year will not incur additional expenditures but is designed to give a welcome stimulus to production in many lines.

UTILITY PROGRAM.—White House conferences with public utility executives are likewise part of the program to promote business confidence. Utilities generally are in need of expanding their plant facilities and their building program would be of great benefit to many other lines of business, but executives have complained that they dare not proceed with such programs in the face of the threat of government competition.

To counteract this the president has curtailed PWA loans and grants to municipalities for the construction of publicly-owned power systems, has consented to a drastic revision of the regional planning authority bill whereby provision for immediate construction of new federal power projects will be eliminated, and is seeking to dissolve the fears of power executives that the government plans to make it impossible for them to continue in business.

LOOK-IN FOR BUSINESS.—Observers of the Washington scene agree that the present official attitude in the Capital is more favorable to business than at any time in the past four or five years, with both the president and influential members of congress inclined to listen to the advice of business men regarding the effects of proposed legislation and administration policies.

FINGERS CROSSED.—A note of warning, however, is being sounded by some who recall the history of the administration and who realize that many of the so-called radical "brain trusters" still occupy positions of importance and influence in the administration. It is the view of such observers that if business does not respond to the current attempts at revival, if the recession shows signs of developing into a real depression, the administration will again swing toward the left, perhaps farther than ever before, and may again embark on a huge spending and relief program which, some say, will inevitably be coupled with inflation and steps toward direct government control and operation of key industries such as railroads, utilities, and natural resources.

SOCIAL SECURITY TAXES.—Social security tax returns will be required of employers quarterly instead of monthly after January 1, under new regulations of the Bureau of Internal Revenue. This regulation applies to the old-age benefit taxes paid directly to the federal government, and does not affect state unemployment tax returns. At present employers are required to pay these taxes monthly, at the same time deducting the employes' share from the pay envelopes. Semiannual returns have also been required showing wages paid to and taxes deducted from individual employes.

In the future both these returns will be consolidated into a single form which will be required only four times a year, although, of course, the employes' tax must be deducted from the payroll every pay day as at present. The object of the change is to simplify the work of keeping records, both for the benefit of employers and the government. Of the 1,800,000 employers now making social security tax returns, the treasury estimates approximately 95 per cent have less than 20 employes, and these small concerns have complained about the large amount of paper work connected with the social security tax system.

They Say:

HYDROGENATION PLANT—"Anticipating the time when America's petroleum reserves begin to fail and prices rise, the bureau is operating a hydrogenation plant at its Pittsburgh Experiment Station to test the adaptability of various domestic coals to the process which is designed to obtain gasoline and other liquid productions from coal," said John W. Finch, director of the Bureau of Mines in his annual report to the secretary of the interior. "Great Britain, Germany, France and Japan have been supplementing their inadequate petroleum stocks with gasoline obtained in this manner."

SAFETY—"I am firmly convinced that if we can reach that large majority of independent producers, refiners and marketers who are not now members of the National Safety Council and induce them to join with us in the crusade against petroleum industry accidents we will render a real service to them in their business and to the industry, as well as substantially contribute to the general good of society," said H. W. Boggess, newly elected chairman of the Petroleum Section of the National Safety Council, in his first message to the section. Mr. Boggess is connected with the Sinclair Prairie Oil Co. and makes his headquarters in Tulsa.

ALBERTA EXTENSION—"We feel that we are opening up an important new industry in developing the southern extension of the Turner Valley oil field in Alberta," writes Robert Wilkinson of the National Petroleum Corp., Ltd., Calgary, Alberta. "Some of the more recent completions after acidization have a potential production of around 3,000 bbls. per day of 46-gravity crude. As you no doubt are aware, the independent producers are in the midst of a battle with the major purchasing companies due to the imposition of a drastic proration order now effective of 35 per cent of potential."

COMPACT EXAMPLE—"The beginning of the end" of the business recession will start just as soon as congress modifies tax laws which are now hampering industry, Col. E. O. Thompson declared last week on his return to Austin, Tex., from Washington. He expressed confidence that congress would enact the necessary changes in tax laws. He was in Washington to promote his contention that cotton-producing states can form a compact along the lines that have been successful among the oil-producing states. The colonel, who is a member of the Texas Railroad Commission, is expected to announce his candidacy for governor early next year.

PURCHASING POWER—"If you can visualize a railroad freight train 305 miles long, with its 37,500 cars stretching 1,612,500 feet, you will have a mental image of the volume of total purchases of economic necessities by the people of the American petroleum industry in one year," explains W. R. Boyd, executive vice president of the American Petroleum Institute. "That train would not be laden with the $876,000,000 worth of supplies and equipment purchased by the industry itself but would convey merely the food purchased at oil-town stores by those who earn their living in this industry, and by their dependents."

SERVICE STATION BUSINESS—Two hundred and eighty-one independent filling station operators located in 10 states reported to the Bureau of Foreign and Domestic Commerce that their September business was greater than the same month last year. The gains ranged from .5 per cent in Nebraska to 21.9 per cent in Ohio. The volume of business in all cases was less than in August, this year, with the exception of Illinois, where a gain of .4 per cent was reported.

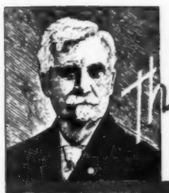
Atlantic Acquires Pantepec Interest in East Texas Field

Pantepec Oil Co. of Venezuela of which W. F. Buckley, New York, is president, has sold its approximately 59 per cent interest in Petroleum Corp. of Venezuela to Atlantic Refining Co. Additional interest in Petroleum Corp. of Venezuela was acquired by Atlantic from E. A. Pierce & Co., giving it approximately 75 per cent of the operating interest in four of the company's five East Texas leases containing 210 acres and 36 completed oil wells, increasing Atlantic production approximately 500 bbls. net a day. Atlantic paid approximately $755,000.

Funds derived from the sale were applied to liquidation of debt by Pantepec Oil Co. leaving the company free of bank loans or funded debt at present. Pantepec has several thousand acres of concession in eastern Venezuela of which 90 per cent is in the hands of Standard Oil Co. of Venezuela by terms of an operating and development contract.

Gulf Coast Refinery Executives and Operators Entertained

Group of refinery men associated with the Gulf Coast territory who were recently entertained at an informal party at Port Arthur, Tex., by Charles B. Buerger, vice president, and William A. Slater, general manager, both with the Gulf Oil Corp. of Pittsburgh, Pa.: (1) C. R. Stevenson, plant manager, Gulf Oil Corp., Port Arthur; (2) H. L. Pelzer, assistant superintendent, Sinclair Refining Co., Houston; (3) G. Alekon, assistant superintendent, Sinclair Refining Co., Houston; (4) H. S. Lane, vice president, Crown Central Petroleum Co., Houston; (5) J. L. Finley, general superintendent, Humble Oil & Refining Co., Baytown; (6) Charles B. Buerger, vice president, Gulf Oil Corp., Pittsburgh, Pa.; (7) Munger T. Ball, president, Sabine Towing Co., Port Arthur; (8) John Carlstrom, chief engineer, Texas Co., Port Arthur; (9) K. W. Shimeall, superintendent, Crown Central Petroleum Corp., Houston; (10) T. F. Hogan, superintendent pressure still department, Gulf Oil Corp., Port Arthur; (11) L. R. Owens, Gulf Oil Corp., Port Arthur; (12) G. I. Roberts, assistant general superintendent, Gulf Oil Corp., Port Arthur; (13) William A. Slater, general manager, Gulf Oil Corp., Pittsburgh, Pa.; (14) W. W. Heaton, chief accountant, Atlantic Refining Co., Port Arthur; (15) H. R. Sharpless, superintendent, power, Gulf Oil Corp., Port Arthur; (16) B. V. Ownby, Gulf Oil Corp., Port Arthur; (17) R. Jackson, superintendent, Magnolia Petroleum Co., Beaumont; (18) L. O. Crockett, chief chemist, Gulf Oil Corp., Port Arthur; (19) F. P. Dodge, general superintendent, Texas Co., Port Arthur; (20) Finn O'Conner, superintendent, Texas Co. of California; (21) G. L. Farned, superintendent, Humble Oil & Refining Co., Baytown; (22) P. Kendall, superintendent, Sinclair Refining Co., Houston; (23) H. W. Ferguson, assistant superintendent, Humble Oil & Refining Co., Baytown; (24) Gerald Greene, marine department, Gulf Oil Corp., Port Arthur; (25) J. V. Baney, assistant to general manager, Gulf Oil Corp., Pittsburgh, Pa.; (26) T. J. Sullivan, general superintendent, Gulf Oil Corp., Port Arthur; (27) G. O. Irvine, president, American Petroleum Co., Houston; (28) P. J. Sweeney, Pan American Refining Co., Texas City; (29) J. A. LaFortune, vice president, Warren Petroleum Corp., Tulsa; (30) R. Kiley, Warren Petroleum Corp., Houston; (31) Sam Hulse, Warren Petroleum Corp., Tulsa; (32) C. E. Lauer, chief chemist, Texas Co., Port Arthur; (33) M. J. Welsh, manager, Atlantic Refining Co., Port Arthur; (34) B. H. Barnes, assistant general superintendent, Gulf Oil Corp., Port Arthur; (35) R. Stewart, superintendent, Atlantic Refining Co., Port Arthur; (36) F. M. Leverett, superintendent, power, Texas Co., Port Arthur; (37) P. H. Marble, superintendent construction and repair, Gulf Oil Corp., Port Arthur; (38) H. L. Tucker, superintendent, lubricating department, Gulf Oil Corp., Port Arthur; (39) H. W. Baker, marine department, Gulf Oil Corp., Port Arthur; (40) P. H. LaGrone, chief accountant, Texas Co., Port Arthur.



the OIL AND GAS JOURNAL

PRODUCING REFINING NATURAL GASOLINE PIPE LINE

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Matter of Price

The proposal of Governor E. W. Marland of Oklahoma to hold a conference of the governors of the twenty-one oil producing states to consider matters relating to the oil business and do things he concedes the operating companies themselves cannot legally do is a dangerous proposition for the oil industry.

The invitation of the governor and his previous statements thinly veil the fact that what he proposes to do is to bring about a condition that will secure a continuance of the present crude oil price or even increase it. He explains there is nothing the oil producing companies can do in this matter without a possible violation of the federal antitrust statutes.

It must be clear to everyone that this camouflaged proposition, if accepted by other states, can result only in serious embarrassment to all concerned.

While the legal position of state executives may differ from that of those operating the business, there can be no question about what the federal government will do and should do if the oil producing states take it upon themselves to determine what price should prevail in the oil business and exercise their power to bring it about.

It seems strange that anyone within or outside the oil industry should be confused regarding the proper position of the state regulatory bodies in relation to oil production. The federal and state statutes make it clear that the power of the states is confined to measures for the conservation and orderly production of the nation's valuable natural resources.

The framers of these conservation statutes never intended they should be used in attempting price control. Their enforcement during the past few years has contributed to the stabilization of the industry by the prevention of wasteful operations, and, as through the Connally act, outlawing those who were persisting in unlawful practices. It has been left to the buyers and sellers, however, to determine what prices should prevail in the fields and in the refineries.

Governor James V. Allred of Texas, declining Governor Marland's proposal, very aptly said:

"As I have always insisted, this (conservation) is as far as the states can legally go, and morally, I think, as far as they ought to go. The oil consuming states and consuming public in general would have as much right to complain against a combination of officials in a few oil producing states to artificially fix the price as they would against individuals doing the same thing."

The federal government agreed to cooperate with the states through the medium of the Interstate Oil Compact Commission for the sole purpose of promoting conservation based on sound operating practices and the prevention of waste. The government looks upon this agency as an aid in assuring future supplies for a constantly expanding demand. It has nothing to do with price.

The oil industry has insisted upon its right to operate with a minimum of restrictions and regulations. In return for this privilege it has given the consumer petroleum products at reasonable prices. It wishes to maintain that position and that record.

There are certain to be fluctuations in operations, both as to supply and demand, and in a free economy price is the factor which corrects this situation.

The industry does not want price control. Any attempt by the states to control the price of oil would inevitably cause a demand on the part of the consuming population for federal control.

Misguided efforts to have the states assume such authority might appeal in states with depleted treasuries in need of funds for extravagant administration, which is another sufficient reason for its rejection.

Natural Gasoline

Miller County, Ark., Gasoline Plant Nearing Completion

SHREVEPORT, La.—East Texas Refining Co. of Dallas, Tex., is nearing completion of a well-pressure absorption-type natural gasoline plant in the Miller County, Arkansas, section of the Rodessa field. The construction is under the supervision of R. H. Turner. Initial operation is set for late December.

The plant will have a production of approximately 50,000 gallons of stabilized natural gasoline per day, and total gas intake may be ultimately augmented to 100,000,000 feet per day. A tube still reboiler and one 600-horsepower boiler are being installed. In connection a 20-house camp is under construction for employes of the F. W. Burford interests in the field.

To Erect Gasoline Plant In Duval County, Texas

HOUSTON, Tex.—Construction work on an 8,000,000-foot natural gasoline plant in the Sweden district of Duval County, Texas, is to be started soon. The plant will process wet gas from several gas wells and from producing oil wells. The project, to cost about $250,000, is to be constructed by Duval Gasoline Co., a newly formed $500,000 corporation. Officers of the company are: D. M. Hovey, president; J. W. Blue, vice president; L. E. Loeffler, secretary-treasurer; and Paul G. Benedum, W. M. Griffin, and R. C. Bowles, members of the board of directors.

The company was recently formed by Standard Oil Co. of Kansas and the Benedum-Trees Oil Co. Contracts for the erection of the new plant are now being let.

Warren to Start Erection of Southwest Texas Plant

Warren Petroleum Co. and the Western Supply Co. will start construction immediately on a 35,000-gallon per day well pressure natural gasoline plant near Aransas Pass, Tex. The plant is expected to be operating within 60 days, all production to be handled through the Tulsa office of the Warren Petroleum Co. The equipment has been chosen to process between 70,000,000 and 80,000,000 feet of gas a day and additions may be made to the plant as needs arise.

Magnolia Planning Carbon Plant for Fitts Pool

Application of Magnolia Petroleum Co. for permission to build a $750,000 carbon black plant in the Fitts pool, near Stonewall, Okla., has been taken under advisement by the Oklahoma Corporation Commission. The proposed plant will have a daily gas capacity of 24,000,000 feet, taking residue gas from the company's natural gasoline plant in section 21-2n-7e, which has a daily gas capacity of about 30,000,000 feet.

Natural Gas

Texas Hearing on Classification Of Oil or Gas Wells

AUSTIN, Tex.—The Railroad Commission has issued notice of hearing for December 6 to consider special rules to fix the classification and control of wells which, under the act of the forty-fourth legislature, are on the border line between an oil well and a gas well.

The commission finds there are some 300 wells producing in various fields, part of which do not fall in the classification of a gas well as defined in the law but which produce a condensate together with a large volume of gas that might invoke the gas well classification as found by the U. S. District Court in Clymore Production Co. and others versus Thompson, railroad commissioner and others, holding in effect "that oil is a liquid existing in the ground or reservoir as oil and as such as produced from it."

The law defines an oil well as producing 1 bbl. or more of crude petroleum to each 100,000 feet of gas and a gas well as producing more than 100,000 feet of gas to 1 bbl. of crude from the same producing horizon. This is the definition to be considered along with the court's decision in the Clymore case.

Amarillo Helium Plant May Sell Gas Commercially

AMARILLO, Tex.—The United States helium plant here, largest in the world, will increase production about the first of the year under the new helium act. C. W. Seibel, supervising engineer, said under the act of September 1, the secretary of the interior was instructed if possible to purchase two commercial plants in Kansas and Colorado. After the purchase agreement is signed, or 30 days after the appraisers' report has been submitted, the plant here will be permitted to sell gas commercially.

Natural and Artificial Gas Projects Being Considered

KITCHENER, Ontario.—The Kitchener Public Utilities Commission has deferred a decision on the proposal of the Otter River Gas Corp., headed by A. B. Holmes of Toronto, to supply natural gas at the city limits, the distribution to be handled by the commission. An alternative proposal for erection of a new artificial gas plant will be studied, and the National Research and Fuel Research laboratories at Ottawa may be asked to survey the local gas situation. Otter River Gas Corp. is planning to supply natural gas from the Brownsville field through an 8-mile extension of Dominion Natural Gas Co. lines which now run as far as Preston.

LLOYDMINSTER, Saskatchewan.—The Lloydminster Gas Co. is laying about a mile of line to connect its new producing well west of the town with the local distributing system. The town has been supplied from No. 1 discovery well for several years.

Pipe Line Activity

Alberta Pipe Line Conference Is Held at Edmonton

EDMONTON, Alberta.—A conference was held here recently of R. V. LeSueur, vice president of Imperial Oil, Ltd.; John McNeil, vice president in charge of marketing; and J. H. McLeod, western production manager with N. E. Tanner, Alberta minister of lands and mines. The conference discussed the operation of the Alberta Pipe Lines act, recently transferred from the lands and mines department to the control of the Alberta Public Utilities Commission. A further conference will be held before any decision on policy is announced.

ON THE BUFFALO GASOLINE LINE: W. G. Hanrahan (right), of Jones & Hanrahan, was in active charge of the project, assisted by T. A. Hester, general superintendent (left). They were here checking up among the rugged hills near Savona, N. Y.

Construction of the extension of the gasoline pipe line of the Atlantic Refining Co. from Williamsport, Pa., to Buffalo, N. Y., and a lateral to Rochester, N. Y., has been completed by Jones & Hanrahan (T. R. Jones and W. G. Hanrahan), pipe line contractors of Dallas, Tex. The total length, including the Rochester lateral, is approximately 220 miles. The Pennsylvania section is being operated by the Keystone Pipe Line Co. and the section in New York by the Buffalo Pipe Line Co. The line is 8-inch throughout.

Construction was carried on with three gangs, one operating in Pennsylvania and two in New York state. The mountainous nature of much of the country in Pennsylvania and New York state added greatly to the contractors' problems and imposed tremendous strains on the mechanical equipment. Nevertheless, the work went forward on schedule at all stages, from 2,500 to 12,000 feet of pipe being laid per day according to the terrain. A total of 17 International tractors with various makes of equipment including Trackson and Tulsa side booms, Seminole and Tulsa winches, etc., were in use on this project. All welding operations were handled by Jones & Hanrahan with their own equipment.

Refinery Expansion

Refinery and Gasoline Plant Started at Cotton Valley

SHREVEPORT, La.—Premier Oil & Refining Co. of Longview, Tex., has begun construction of a new 3,000-bbl. skimming refinery in the Cotton Valley field of Webster Parish, North Louisiana. The plant will process local Cotton Valley production, a crude which averages 62-gravity, requiring no cracking. In conjunction with the refinery project, Premier is building an absorption type natural gasoline plant which will take the rich gas from the Cotton Valley oil leases, and add to the gasoline capacity of the refinery.

Initial operation is set for February 1. Premier, headed by Sylvester Dayson, is doing its own construction work, under supervision of L. G. Dufilho, chief engineer.

Panhandle Adding Cracking Unit at Lueders Plant

FORT WORTH, Tex.—Equipment for a new Dubbs cracking unit at the Panhandle Producing & Refining Co.'s plant at Lueders, Jones County, Texas, is now being installed, and construction is expected to be completed soon after December 1. The plant will handle crudes from the rapidly expanding Rotan and Avoca fields nearby, and will have a capacity of 1,000 bbls. per day of cracked gasoline.

New Refinery Being Built In South Turner Valley

CALGARY, Alberta.—Economy Oils, Ltd., controlling two producing wells in South Turner Valley, is erecting a $100,000 refinery on the Century lease in section 28-18-2w5. Construction is now under way and will be completed by January, 1938. The plant will operate on Turner Valley crude, processing 500 bbls. daily. The company, heretofore handling Montana crude, has 85 distributing outlets in Alberta and Saskatchewan. Louis K. Bowden is managing director.

Gulf Installing Acid Treating Unit at Port Arthur Plant

HOUSTON, Tex.—Gulf Refining Corp. is installing a 12,000-bbl. per day Stratcold acid treating unit at its Port Arthur, Tex., refinery.

Imperial to Enlarge Regina And Calgary Refineries

REGINA, Saskatchewan.—Preliminary work on a 3,000-bbl. addition to its 4,000-bbl. refinery located here has been started by Imperial Oil, Ltd. Cost of the new equipment, together with other additions, is expected to approximate $350,000 when completed next June. In addition to the work at Regina, the company will spend about $500,000 for a new cracking unit at its Calgary refinery. Announcement of the expansion program was made by R. V. LeSuer, vice president of the company, who was in Regina on an inspection trip.

British American's Coutts Refinery Is Shut Down

CALGARY, Alberta.—The British American Oil Co. refinery at Coutts, Alberta, has been closed, only a skeleton crew being maintained to keep low steam pressure in the boilers during cold weather. The company purchased the refinery three years ago from Northwest Stellarene Co. following which it was remodeled and expanded.

The closing of the plant, which was an important market for Montana crude, follows the company's decision to operate exclusively on Alberta, and chiefly on Turner Valley crude. About 2,000 bbls. a month from the Red Coulee field will be sent from Coutts to the company's refinery at Moose Jaw, Saskatchewan. The company's contracts for the purchase of Montana crude terminate at the end of December.

J. K. Jamieson, assistant superintendent, and A. T. Tomlinson, office manager, remain at the Coutts plant. Of other officials, James Haskell was transferred to Turner Valley; A. S. Ruthven named traveling auditor with headquarters at Saskatoon; D. L. Campbell, chief chemist, transferred to Montreal; Steele Sifton, foreman, to Moose Jaw; and Reginald Ward of the office staff, to Calgary.

Southwestern Oil Adding New Unit at Corpus Christi, Tex.

HOUSTON, Tex.—Southwestern Oil & Refining Co., operator of a 3,000-bbl. refinery at Corpus Christi, is adding a 5,000-bbl. unit at this plant instead of building a new 5,000-bbl. plant at Lake Charles, La., as previously reported. The new unit is to be completed about February 15, 1938. S. S. Seltzer, of New York City, is president of the company.

Stream Bed Oil Possibilities Are Studied Before Leasing

AUSTIN, Tex.—Employes of the board of mineral development studied oil production possibilities in the vicinity of 330 state-owned acres in stream beds of five counties on which the board may lease mineral rights.

Governor James V. Allred expressed preference for high cash, rather than high royalty, offers. Tracts under consideration are the Nueces River in Live Oak County, Mission River, Media Creek and Blanco Creek in Refugio County, Trinity River in Freestone and Anderson counties and Black Cypress Bayou in Marion County.

Shell Petroleum Corporation Manufacturing Department Changes

T. G. ELDER

WILLIAM MULLEMEISTER

DR. R. H. WASER

F. S. CLULOW

Several important personnel changes in the manufacturing department of Shell Petroleum Corp. are scheduled January 1 including the return to the St. Louis headquarters of W. Mullemeister to take charge of the products division. Mr. Mullemeister is now manager of the Houston, Tex., refinery. Associating himself first with the Shell organization in 1922 as electrical engineer, he has been in charge of various departments of the refineries at Wilmington, Calif.; Wood River, Ill.; Dominguez, Calif., and Houston, Tex.

Succeeding Mr. Mullemeister at Houston will be Dr. R. H. Waser, who has been in charge of the Wood River plant. In the 20 years he has been a member of the Shell organization, he has had charge of work in the Wood River; Arkansas City, Kans.; and East Chicago, Ind., plants.

F. S. Clulow, formerly manager of the East Chicago refinery, moved to Wood River December 1 to take over the duties of Doctor Waser. Mr. Clulow has held important posts with Shell Oil Co. of Canada, including superintendency of the Montreal plant. He also has been in charge of work in the Martinez, Calif., refinery.

Other important changes include appointment of T. G. Elder, formerly superintendent of the Houston refinery, as refinery manager at East Chicago, and appointment of J. L. Miller as superintendent at Houston.

F. C. Cutting, formerly located at Wood River, has been made superintendent of the East Chicago refinery, and G. C. Cunningham, formerly at the Houston plant, will go to Wood River to take charge of all distillation work. James Grant, now in the St. Louis offices doing technological work, will take charge of the Houston refinery's gas plants.

Battle at Madison Over Ickes; Wirt Franklin on Stand

By R. B. PYRE

MADISON, Wis., Nov. 30.—A legal battle which went to the heart of the issues in the oil case was precipitated in federal court today by a defense offer to prove that Harold L. Ickes, secretary of the interior, interceded in October, 1934, to prevent a threatened cut in the price of crude oil from $1 to 60 cents a barrel.

The jury was excused and the argument was still in progress when court adjourned at noon.

The defense sought to show that Ickes promised government action to assure independent refiners of a price for their gasoline which would give them a fair return as an alternative to the crude oil price cut; and that the defendants were justified in believing Ickes sanctioned their "informal activities" in carrying out the code administrator's objectives by removing distress gasoline.

The prosecution demanded that the entire line of evidence be excluded as immaterial and that the court decide once and for all the defense of "justification" does not apply in a "price-fixing case" under the Trenton potteries decision of the U. S. Supreme Court.

The defense demanded the right to show the defendant companies did not control the market and that all circumstances in the case bring it under the Appalachian coal decision in which the Supreme Court held the coal companies accused of price-fixing did not and could not have fixed prices above the going market.

The defense opened Monday when Judge Stone announced he would require more time to consider motions of individual defendants for directed verdicts of acquittal. He overruled all motions to strike testimony and exhibits.

Wirt Franklin, independent oil producer of Ardmore, Okla., and former chairman of the Planning and Coordination Committee under the petroleum code, was the first witness called by the defense.

The defense, through the witness, sought to show the difficulties of independent refiners from 1933 to 1935, and their bearing upon the case. Prosecution attorneys charged the defense was attempting to "draw a red herring across the issue." The defense insisted the condition of the industry just prior to the alleged conspiracy period had a vital bearing upon the purposes of the defendants in their "stabilization" activities.

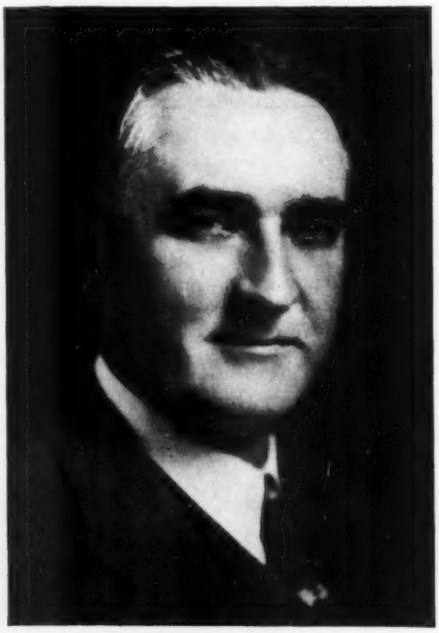
Mr. Franklin was allowed, as a qualified expert, to go exhaustively into crude oil production when the court wanted the jury to learn all it could about general conditions in the industry. Mr. Franklin explained, with a cross-section of an anticlinal dome, the formations that "trap" oil, and the financial hazards attending "discovery" wells. He also explained, with a miniature pumping well, the process of bringing a well into production and operating it economically.

After describing his appointment to the code authority and its duties, Franklin explained "We don't understand conservation to mean the hoarding of oil in the ground but rather its production without waste and its wise use for the greatest good that can be obtained for civilization."

Stripper wells, he said, contain about 40 per cent of the nation's reserves, and it is important to the industry and the best interests of the nation that they be kept pumping to avoid waste through the encroachments of water.

"They are the backbone of the industry, compared with flush wells which are here today and gone tomorrow," he said.

While the prosecution had interrupted only briefly up to this point to object to his opinions as to what was "good for the country," the battle



WIRT FRANKLIN

started when he was asked to testify in relation to well pumping from a conservation standpoint.

Conservation, said H. E. Chaffetz, is a broad problem, to be handled properly by congress and the states, and cannot be made an excuse for "defiance of the law."

"What we did was not in defiance of the law but in conformity with it," Colonel Donovan answered, declaring the circumstances described by Franklin had a vital bearing upon the purpose and intent of the defendant companies.

Chaffetz contended "motives are immaterial," in this case and asked the court again to rule that the Trenton potteries case applies, limiting the issue solely to the question of price fixing and barring out justification as a defense.

As on previous occasions Judge Stone disregarded the demand while ruling that after the NRA was invalidated the Sherman act applied solely and suggesting, "Before we hear much more along this line the court will take testimony to show there was a compliance with the statute."

There was no conservation element in the Trenton potteries case, Colonel Donovan argued, asking that the "doctrine of fair play" alone govern in this instance and insisting the defense will prove there was no monopolistic menace in the activities of the major companies and no control of the market was possible through their purchases of surplus gasoline.

"It was and is a competitive market," he insisted, and when the court asked whether or not there would be an attempt to show the defendants operated under the code, he declared:

"We stand both on the code and on the Sherman act. What we did was justified under the law whether there was a code or not."

Chaffetz maintained, on the contrary, the defense was not even entitled to show what were the objectives of the Planning Committee.

The immediate question related to the price of crude oil and its bearing upon conservation. The court finally ruled Franklin might answer it.

"There can be no conservation of crude oil within any rational meaning without taking into consideration the price of crude oil," he said.

The producer of oil must sell on a day-to-day basis if he expects to continue taking his share of daily production, and the refiner, under the division of orders in force under state law, must take his daily allotment at the posted price, Franklin explained. A producer cannot close his well, because if he did, he would lose part of his oil to other operators, and if he fails to protect his property from drainage his lease is subject to cancellation.

His own refinery, which had operated steadily for 16 years, was forced to close in March, 1935, because it could not recover enough value from its product to pay for its crude oil, Franklin said after pointing out a small refinery cannot close without going out of business entirely.

Before it closed, his refinery had been operating at a loss of $15,000 to $25,000 a month, he said, and when asked why it did not close in 1934, he declared it continued to operate "because a plan was under consideration by the code administrator to bring up the gasoline price to give refiners a fair return."

"The answer may be stricken," the court ruled when prosecution attorneys arose in a chorus of objections.

The prosecution objected again when Judge Stone himself asked a question: "Do you mean that you could not operate at a profit from 1933 to 1935?"

That was the situation, Franklin answered, adding it was a general condition among independent refiners.

"We couldn't make enough money to pay back the cost of drilling wells at $150,000 apiece," he added, and the court suggested that his own overexpansion might have been the cause of his difficulty as it had been in the case of many business men. Franklin answered this, however, by pointing out the discovery of the East Texas field was an unforeseen complication.

His statement that major companies also would have been compelled to close their plants if conditions had continued as they were in 1934 and early 1935 was ordered stricken.

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Automatic Cellar Drainer (Water or Steam Operated)

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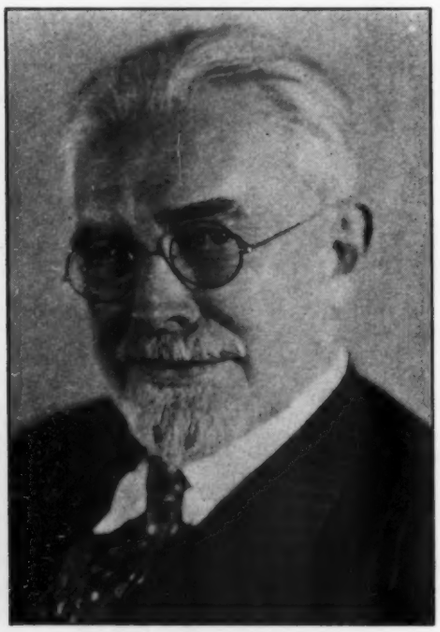
• The Penberthy Reflex Gage shown here is recommended for working pressures to 350 lb. at 450° F. It is available in both Navy Bronze and Malleable Iron. Other Penberthy Reflex Gages are made in any length desired for higher pressures and for various kinds of liquids. Any leading oil well supply distributor will be pleased to quote upon your particular requirements.

PENBERTHY INJECTOR COMPANY *Manufacturers of* QUALITY PRODUCTS *Since 1886*
DETROIT, MICH. • *Canadian Plant,* Windsor, Ont.

Henry L. Doherty Awarded Lucas Medal by Engineers

Henry L. Doherty, president of Cities Service Co., has been awarded the Anthony F. Lucas Gold Medal by the American Institute of Mining and Metallurgical Engineers. The award was made on recommendation of a special committee of 15 leaders in the petroleum industry, under the chairmanship of John R. Suman, vice president of Humble Oil & Refining Co. The only previous recipient was J. Edgar Pew, vice president, Sun Oil Co.



HENRY L. DOHERTY

Mr. Doherty is credited by engineers as among the first to recognize the importance of gas dissolved in oil in the pool to the whole operation of drilling a field and recovering the oil. It was shown that, if the pressure in a reservoir is reduced, gas comes out of solution leaving the oil more viscous, so it flows less readily, and with a higher surface tension, so it clings more tightly to the sands. The rapid decline in flow and the large proportion of oil left in the sand, after flowing and pumping, were explained as being due more to change in viscosity and surface tension than to reduction in the motive force of the gas pressure. It followed that if sufficient pressure be kept on the oil in the reservoir to prevent gas coming out of solution, the fluidity will be maintained and the oil will flow freely for considerable distances under comparatively small pressures. These discoveries pointed to the advantages of the "unit" operation. Engineers were quick to take advantage of the principles concerning the effect of dissolved gas, and the many papers on the subject and its corollaries, air-lift, gas-lift, gas-oil ratio, and back pressures, have manifested continuing interest in, and application of, these principles.

Mexico and Colombia have by federal statute required that oil pools be developed as units. The United States, also, requires unit development of federal lands.

Petroleum Electric Power Club Program for Shreveport Meeting

The ninth annual conference of the Petroleum Electric Power Club will be held in Shreveport, La., December 8-10, being welcomed to Shreveport by M. T. Walker, vice president, Southwestern Gas & Electric Co. R. F. Patrick, Kansas Gas & Electric Co., will read a paper on purchased electric power for production Thursday morning. In the afternoon F. A. Graham, Kansas City Power & Light Co., will discuss purchased electric power for pipe line pumping and K. K. Kreamer, Houston Lighting & Power Co., will read a paper on purchased power for refining.

Attending oil men and other guests are invited to attend the annual banquet at 7:30 Thursday evening. Election of directors for 1938-1939 will take place Friday morning.

R. D. Hayes, Middle West Utilities Co., will present a paper on selling purchased electric service.

W. H. Stueve, Oklahoma Gas & Electric Co., chairman, will offer the report of the committee on advertising and lead a discussion of the advertising program.

E. L. Robinson, Gulf States Utilities Co., will present his report as treasurer.

December State Allowables Below B. of M. Estimates

December state allowable crude oil production in the six principal producing states is 117,755 bbls. per day below the Bureau of Mines estimate of crude oil demand from the same states. The combined Bureau of Mines estimate on demand in Texas, California, Oklahoma, Kansas, New Mexico and Louisiana is 3,202,100 bbls. per day in December, while the various commissions empowered to conserve natural resources, and the central committee of California oil producers which can only recommend, give out a combined figure of 3,084,345 bbls. a day for the six states.

The Railroad Commission of Texas Tuesday set its allowable for December at 1,375,046 bbls. daily, compared to an allowable for the last half of November of 1,354,140 bbls. daily, an increase of 20,906 bbls. a day.

The December state allowables in four of the six states are below the figures established by the commissions at the beginning of November: Oklahoma, 25,000 bbls.; Kansas, 3,515 bbls.; California, 29,170 bbls., and New Mexico, 700 bbls., while Texas is up 20,906 bbls. and Louisiana is up 825 bbls.

THE MARKETS*

CRUDE OIL: *Declining stocks and biggest reduction in daily average production in four years have imparted a healthier tone to the crude market. Lower allowables fixed by most of the major oil-producing states contributing to the better feeling. No changes in posted schedules. Talk of probable price reductions in Mid-Continent subsiding.*

REFINERY: *Demand for heating oils stimulated by colder weather in wide areas. Lighter grades, along with kerosene and range oils, extremely tight. Gasoline slightly steadier, but tankcar prices in many areas do not cover cost of manufacture. Naturals slightly firmer. Heavy fuels slow.*

TANK-WAGON AND SERVICE STATION: *Tankcar prices reduced in parts of Rocky Mountain area. Tankcar and dealer prices reduced in Pennsylvania. Local price wars among service stations at scattered points.*

FINANCIAL: *After participating in the general midweek slump oil shares recovered most of their lost ground and closed the week near their highs. Average of 30 stocks for week ending November 27: High, 28.33; low, 25.79; close, 27.96. Week ending November 20: High, 30.53; low, 26.92; close, 27.54.*

**Detailed information in market section.*

OBITUARIES

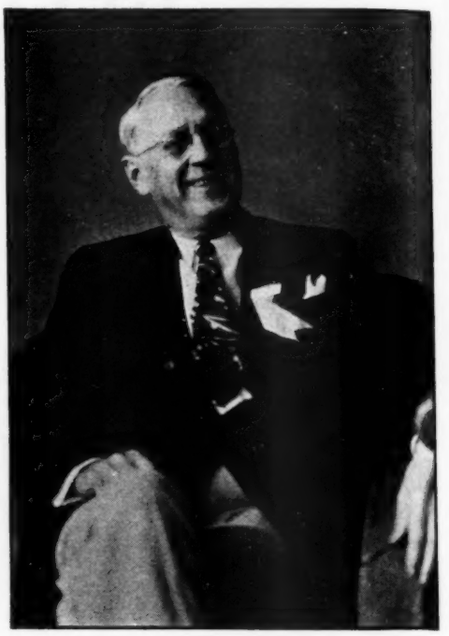
WILLIAM J. BOVAIRD, 74, founder and chairman of the board of directors of Bovaird Supply Co., Tulsa, and one of the veteran supply men of the petroleum industry, died November 26 at his home in Independence, Kans.

Born at Shamburg, Pa., March 25, 1863, he grew up at Bradford and worked with his father in the supply business, and in 1903 moved to Independence. He established the Bovaird Supply Co. and was its active manager until about 1925, when he became chairman of the board. He is survived by his widow, Mrs. W. J. Bovaird; three sons, F. D. Bovaird, W. M. Bovaird and D. D. Bovaird, all of Tulsa; four daughters, Mrs. W. D. O'Neil, Buffalo, N. Y.; Mrs. J. W. Laury, Kansas City, Mo.; Mrs. C. V. Dennis, Jr., Independence, and Mrs. A. C. Hoddick, Buffalo; a brother, J H. Bovaird, Bradford, Pa., and two sisters, Mrs. John Downs and Mrs. Margaret Booth, both of Bradford.

John H. Kane Resigns From Phillips; K. S. Adams Succeeds Him

John H. Kane, executive vice president and general counsel of the Phillips Petroleum Co., has resigned, and K. S. Adams, formerly treasurer and assistant to the president, has been selected to succeed him, it was announced after a meeting of the directors in New York.

Don Emery, vice president and assistant general counsel, becomes vice president and general counsel;



JOHN H. KANE

R. M. Riggins, former comptroller, was chosen treasurer, and R. E. Parr, former assistant comptroller, becomes comptroller.

President Frank Phillips wired Mr. Kane from New York: "You will leave the service of the company with the good wish of everyone in the company. I am sure you know how much I have appreciated your loyal, constant, and generous service over a period of 20 years. You should, and I know you must, feel that enduring satisfaction that comes from many years of successful service."

Mr. Kane replied by telegram to Mr. Phillips: "I don't like the words resign, retire, and quit, yet I have been impelled to let down a bit and to have more time for personal matters. I regret to be backing away from the front line of the best organization in the oil and gas business. My interest will always be that of Phillips Petroleum Co., and my devotion to Frank Phillips, its dynamic, constructive leader, and the boys with whom I have worked for the past 20 years."

Mr. Kane was born in Pennsylvania 63 years ago, moving to Kansas while a boy. After graduation from University of Kansas law school in 1900, he practiced law in Kansas City until he moved to Bartlesville in 1904. He was president of the Oklahoma State Bar Association in 1928.

East Texas A.P.I. Chapter At Kilgore December 14

The East Texas Chapter of the American Petroleum Institute will hold its next meeting in Kilgore on Tuesday evening, December 14, according to W. S. Morris secretary. The meeting will be preceded by a dinner at the Kilgore Hotel. Nominating committee for 1938 officers will be named at that time. The program for the meeting will include three speakers and a sound picture.

The 1938 National Safety Congress will be held in Chicago October 10-14, at the Stevens Hotel. Next year is the silver jubilee year of the council which began in Chicago with two men and a tiny office 25 years ago. The 1938 congress will have 200 sessions and more than 400 speakers.

To cash in

An Equiflux heater does more work than any other heater of equal tube surface that you can get

That means a smaller heater for a given job

It means faster heating of the oil, longer non-stop runs, maximum yields of gasoline—better Dubbscracking

Put in a Dubbscracking unit with Equiflux heater—now

Cash in on it when the big motoring season starts

It won't be long now

Universal Oil Products Co
Chicago, Illinois

Dubbs Cracking Process
Owner and Licensor

INTERNATIONAL NEWS

Mexican Labor Controversy Is Still Dominant Factor

Delay in announcing the Mexican Labor Board's decision in the controversy between foreign controlled oil companies and the labor syndicates was construed last week as beneficial to the concerns involved. The benefits were only implied, however, as nothing definite had been announced from the labor board's offices. It was considered possible certain revisions in the original draft may be contemplated. Three weeks ago the Mexican Labor Board's decision was reported ready for issue and information that it stipulated adoption of the investigating committee's findings precipitated strong protest from the American and British companies.

Later, the Mexican Eagle Oil Co. was awarded acreage in the Poza Rica field under confirmatory concessions on its bid to carry the National Petroleum Administration for an operating interest in certain tracts. A government decree cancelling concessions of Richmond Petroleum Co., Standard Oil Co. of California subsidiary, to about 770,000 hectares of land in Tabasco, Chiapas and Campeche, was also announced. In defense of the title to Richmond's concessions, several injunction suits have been filed in Mexican courts by the company and also by Gen. Fortunato Zuazua from whom the land was originally subleased. In his plea General Zuazua admitted drilling had not been started in six months, one of the terms in the original lease he obtained from the government.

Earlier rumors that representatives of the German government are in Mexico seeking to negotiate a barter arrangement between the two countries were confirmed by official Mexican sources last week. The basic commodities considered in the negotiations are Mexico's oil, cotton and agricultural products and Germany's finished industrial goods, chiefly machinery.

Meanwhile, other oil companies in Mexico are making all possible preparations to defend their positions against possible decisions in the wage dispute, assembling data against any order for an exorbitant increase.

Largest Potential Producer In Bahrein Island Field

The largest potential producer yet completed on Bahrein Island in the Persian Gulf was indicated recently by Bahrein Petroleum Co. No. 55 when it flowed at a rate of 140 bbls. per day per pound decline of bottom-hole pressure. It is estimated on the basis of past results and reservoir study, that, if allowed to flow unrestricted, it would have an open flow potential of more than 50,000 bbls. per day.

The indicated high potential is the more remarkable because 6⅝-inch casing was cemented below the pay, then the casing was gun-perforated, and the well acidized. The usual completion procedure previously practiced in Bahrein was to complete wells under pressure with the last string of pipe set on or near the top of the producing formation.

No. 55 is approximately 1,000 feet east and 4,000 feet south of the discovery producer on Bahrein Island completed more than five years ago.

One-Fourth of England Now Under License for Testing

The search for petroleum in Great Britain has shifted to the northern and east central sections. Anglo-American Oil Co., Ltd., subsidiary of Standard Oil Co. (New Jersey) has secured right to explore an additional area of 1,848 square miles. With exception of one parcel of 188 square miles, all of the new territory is in the counties of York, Lincoln, Notts, Derby and Leicester, extending roughly from Nottingham on the south to York on the north, Sheffield and Leeds on the west and the smaller towns of Howden, Crowle, Gainsborough and Newark on the east.

The permits are adjacent to a larger territory previously obtained by D'Arcy Exploration Co., subsidiary of Anglo-Iranian Oil Co. D'Arcy has been particularly active in core drilling and geophysical work.

Addition of the 1,884 square miles of land increased holdings of Anglo-American Oil Co. in Great Britain to 2,338 square miles. There is a total of 13,198 square miles now under license to five oil companies which constitutes nearly 26 per cent of the island's area.

Since completion of the four-well program in southern England, two new tests, one each by Anglo-American and D'Arcy Exploration, have been started in northern England in an effort to develop carboniferous oil obtained in quantities approaching commercial requirements in an abandoned well drilled shortly after the war in the same general vicinity. Exploration of the area formerly held by D'Arcy and recently acquired by Anglo-American in east central England probably will follow completion of the work now in early stages in the northern part of the country.

Bolivia and Argentina Sign New Treaty on Petroleum

The Bolivian government has authorized signature of the petroleum treaty between that country and Argentina. The treaty provides that no custom duties will be paid on Bolivian oil transported from the Chaco through Argentina to Bolivia and Bolivia is allowed to construct oil lines through northern Argentina.

Standard Oil Co. of Bolivia is still attempting to reclaim its oil leases, wells and two refineries in Bolivia which were confiscated by the government several months ago. When the company's $17,000,000 investment was expropriated by the government, it was claimed that the company had transported oil into Argentina without paying the royalty required under terms of the concession. The charges were denied at the time by Walter C. Teagle, then president of Standard Oil Co. (New Jersey), parent of the Bolivian concern. The present move of Bolivia is considered an indication the nation probably intends to exploit the producing wells for its own benefit.

In Yenangyaung, Burmah

Natural Gas From Ploesti Field May Be Piped to Bucharest

Rumania's abundant gas reserves may be called upon to meet the domestic heating problem developing in Bucharest where firewood and oil have been the chief fuels for years. At a recent meeting of the economic delegation of the government, the old project of a natural gas system for Bucharest connecting with the Ploesti field was revived and groundwork was laid for carrying through the program.

The Bucharest municipal gas and electric company has offered, it is reported, to form a company with state participation to which the concession of the natural gas supply should be granted for a number of years. Distribution would be made through the present system which is to be reconstructed and extended. It is estimated approximately five years would be required at an outlay of approximately $3,500,000 on the present rate of exchange for materials and labor, according to a report to the U. S. Bureau of Foreign and Domestic Commerce.

The ministry of industry and commerce is reported to have drafted a decree-law whereby the formation of a joint corporation is provided for the exploitation and industrialization of natural gases. The state would participate with its royalties on the underground products while several large Rumanian banks and oil concerns would subscribe about 500,000 lei to the capital of the enterprise.

The fuel question in Bucharest is becoming a difficult problem for municipal authorities, it is reported. Prices of firewood are advancing and a shortage of supply in a few years is facing authorities.

French Petroleum Imports Increase Nearly 9 Per Cent

French imports of petroleum products increased nearly 9 per cent during the first nine months of 1937 compared to 1936. Most of the increase was in the refined products, chiefly heavy fuel oil, gas oil, kerosene and motor fuel.

Crude continues the bulk of imports, amounting in nine months to 4,487,374 metric tons against 4,288,287 tons for the same period in 1936. There are three or four large distillation units under construction in France which may tend to retard the rapid rise in imports of refined products. Motor fuel imports of 395,754 metric tons during the first nine months increased nearly 16 per cent over 343,813 tons.

Fuel oil imports totaled 477,797 metric tons compared to 292,617 tons in 1936, a gain of 63 per cent. Gas oil imports of 171,636 metric tons compared to 123,446 tons, an increase of over 39 per cent. Kerosene imports increased nearly 46 per cent, but the volume of 2,016 tons compared to 1,385 tons in 1936 is too low to be of much importance. Lubricating oil imports of 67,973 tons declined about 4 per cent from 1936.

Peak in Colombia Output: Peru Shows Slight Decrease

Colombian production by Tropical Oil Co. touched a new peak in October of 1,811,759 bbls., a daily average of 58,444 bbls. International Petroleum Co., another subsidiary of Imperial Oil Co., Ltd., operating in Peru, produced 1,235,120 bbls. in October, a daily average of 39,843 bbls.

The record production in Colombia compares with 1,617,433 bbls., or 53,914 bbls. daily in September and with 1,600,288 bbls. in October, 1936. For the first 10 months of 1937, Colombia production totaled 16,675,265 bbls., compared to 15,576,791 bbls. for the same period in 1936.

International Petroleum Co. production in Peru totals 12,308,868 bbls. for the first 10 months, compared to 12,556,817 bbls. in the first 10 months of 1936. Lobitos Oilfields, Ltd., Shell subsidiary producing in Peru, has increased its daily average output to around 8,000 bbls., compared to an average of 6,000 to 6,500 bbls. in 1936.

ENGINEERING AND OPERATING SECTION

Presenting modern developments in operation of producing properties, refineries and gasoline plants, and pipe lines, including petroleum research in the field and laboratory.

This Week

ELECTRICAL POWER DEMAND GROWING IN GULF COAST REFINING INDUSTRY—By George Weber . Page 32

Use of electrical power in Gulf Coast refineries is showing substantial gains, although the amount of power required per barrel of crude throughput is declining. General types of electrical equipment used in these refineries, and factors influencing the choice of equipment are described. A breakdown of power demand according to use is also given.

POLYMERIZATION IN RELATION TO NATURAL GASOLINE MANUFACTURE—By Henry N. Wade . . . . . Page 35

Polymerization of light materials derived from the stabilizer discard in natural gasoline plants offers a wide source of polymer motor fuels. Steps taken in converting the saturated hydrocarbons into polymer products and data on investment costs are given.

PROGRESS IN METALS—By W. L. Nelson . . . . . Page 43

Strengths of molybdenum steels at low temperatures and uses of manganese steels in the petroleum industry are discussed. Effects of grain size and hardness on the properties of molybdenum steels are pointed out, as well as general properties desired.

1937 ROAD KNOCK TESTS—REPORT FROM COOPERATIVE FUEL RESEARCH COMMITTEE—By T. A. Boyd . . . . . Page 44

Results of a series of coordinated road tests carried out by individual operating companies are discussed. Two series of fuels were used, one representing a conventional winter volatility gasoline and the other having summer volatility characteristics. Method of obtaining the average road rating and effect of atmospheric temperature on ratings are described.

ILLUSTRATED OPERATING IDEAS . . . . . Page 53

Anchoring well-servicing truck. Portable gasoline pump used to empty lease tanks. Portable boiler for treating tank bottoms. Open-air pipe shop. Signal valves installed on battery of drilling boilers sound alarm when the water level becomes too low.

QUESTIONS ON TECHNOLOGY—By C. K. Francis Ph. D. . . . . Page 55

Condensation in neck of Engler flask and temperature drop. Kauri-butanol value of 40 for special petroleum naphthas. Carbon deposits in auto engines related to type of lubricating oil. Vanadium may be present in ash and soot from petroleum. Chemicals for the petroleum industry—diethylene glycol.

PROBLEMS FROM READERS—By L. G. E. Bignell . Page 56

Electric resistivity prospecting methods. Lifting equipment for small wells located in Cuban field. Statistics on production and marketing of sulphur.

Demand for direct current for use in electrolysis in a large Gulf Coast refinery is met by this bank of motor-generator sets. The motors are of synchronous type, driving the d.c. generators at 1,200 r.p.m.

Electrical Power in Gulf Coast

By GEORGE WEBER

First of three articles especially prepared to depict trends in the use of electrical power in refineries located along the Gulf Coast

The use of electrical power in the Gulf Coast refining industry is currently showing substantial gains. With numerous recent additions to large plants in that area, and widespread construction still under way, power requirements are rapidly gaining.

Electrical equipment in new installations is generally finding increased favor. Yet, although electrical demand shows a steady gain, the amount of such power utilized per barrel of crude throughput in the Gulf Coast is at present declining, with the current trend toward greater plant economy and growing crude processing schedules.

Centralization of operations which distinguishes refining from other branches of the oil industry, is found on a large scale in the Gulf Coast sections of Texas and Louisiana. In the plants of that area fixed and continuous duty of prime movers together with close relationship of all operations promotes the use of electric power.

The extent of adoption of electricity as a power medium is, however, determined and limited by many factors. The problems of each individual refinery influence the use of electricity, and since each plant varies from the other in its design and operation, the electrification of the refining industry concerns a complex study of all processes. In order to obtain as general a picture as possible of this important subject as it applies to the Gulf Coast, brief surveys were made in several representative Gulf Coast refineries. The results, while they form a truer picture of the use of electricity generally, at the same time lose some of their significance due to the inconsistency of grouping different refineries in one general class.

Electric Power Adaptation

A study of the factors influencing the choice of electrical equipment in a refinery embraces several factors. Centralization, which is highly developed in the industry, does not entirely favor the use of electrical over steam and gas power. The ability to center all power generation in one or more plants in a refinery gives it an equal advantage to steam. But in steam power plants generating electricity, a balance must be maintained between the utilization of electricity and the by-product steam from turbines driving the generator units.

In the vicinity of distillation and cracking units, where steam is available nearby and hazardous locations abound due to presence of oil and gas, steam-driven pumps are likely to predominate. In the outlying points of the refinery, however, such as loading stations, tank farms and water pumping units, electricity, through ease of transmission has a very definite advantage. Refiners are working toward decentralization in those sections of plants, aided by dependable electrical motors, and simple and economical transmission of power.

Although steam- and gas-powered pumps are used to a large extent for moving streams in distillation and cracking plant locations, newly developed explosion-proof motors are finding increased adoption. In this, the work of the manufacturer of electrical equipment has had a marked effect. Development of units for use in hazardous and corrosive atmospheres is resulting in many successful electrical installations for hot oil, charging and transfer pumps.

Motive power in modern refineries is applied in more than 90 per cent of the cases, to the handling of fluids. In addition, the streams moved about a plant are generally fixed and steady, necessitating the simplest of pumping and power units. For that purpose, centrifugal pumps are ideally suited. As performance of such pumps may be varied by throttling and by-passing, variable speed is not essential. The requirements for powering such pumps are met with the simplest of electrical motors, the squirrel-cage induction type.

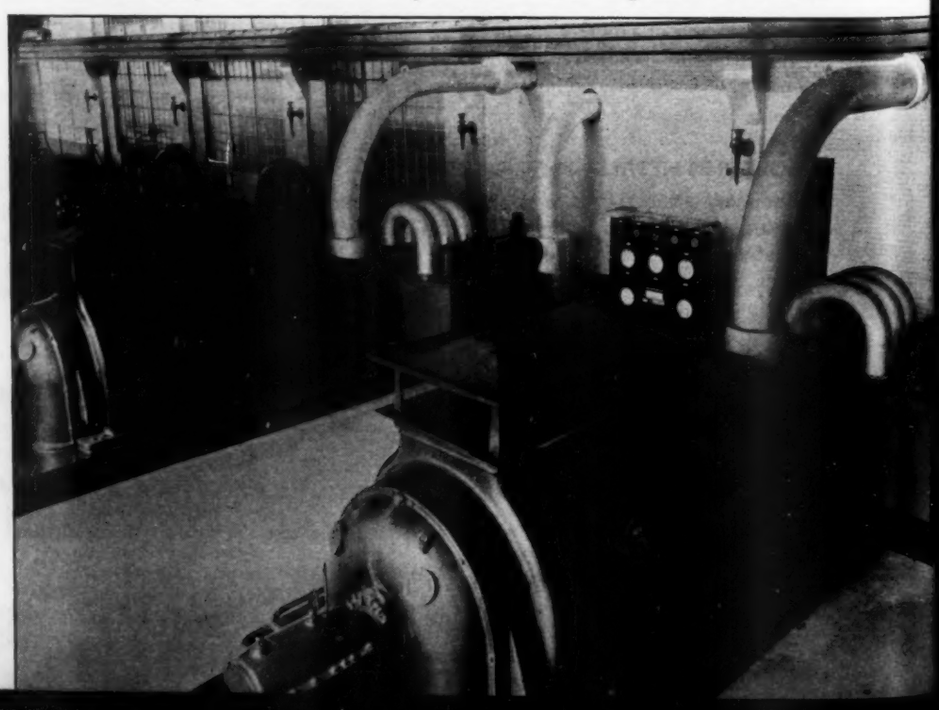
First cost is still a factor in some cases, against the widespread adoption of electricity in refineries. In many large plants, which date back to the early history of the industry, steam power has long been predominant, and the advantages of electric drives in many parts of the refinery will not yet justify the purchase of new equipment and junking of workable pumps of other types.

In the construction of new integrated units, electrical power is favored in nearly all cases.

It is seen, then that the use of electrical power in the refining industry is dependent on a number of factors. Centralization of operations in large processing units is an advantage to electricity from the standpoint of generation and transmission, but the latter is not a hindrance to adaptation in the more decentralized outlying points of the plants. Fixed runs and fluid handling make application of constant speed, electrically driven centrifugal pumps a most economical installation.

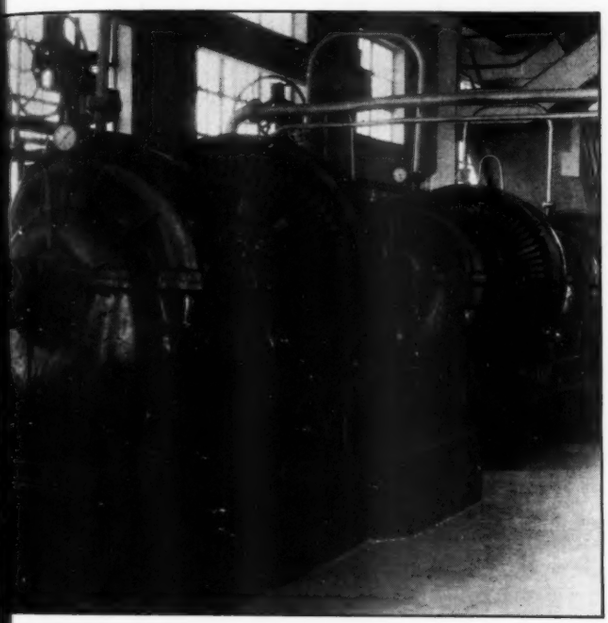
Finally, first cost, while it stands in the way of much replacement, does not prohibit installation of electrical motors in new construction projects. An important factor in the increased adoption of electrical motors in refineries is the action of equipment manufacturers in perfecting safe and reliable electrical motors, and auxiliary equipment.

New 650-pound turbines powering electrical generators in a new Gulf Coast refinery power plant. The utilization of higher pressure steam in such units greatly increases the efficiency of electrical generation, older low-pressure units utilizing the exhaust steam



Demand Growing Refining Industry

The adaptation of electrical motors to refinery jobs is dependent upon two general considerations. The unit must be picked for the electrical characteristics, load, horsepower and speed required. In addition to the mechanical requirements, particularly in refineries, must be considered the conditions and surroundings in which the motor will operate. Corrosion resistance, safety from explosive and fire hazards, and reliability come under the second classification.



Cooling-water pumping represents a major power item in Gulf Coast refineries. This bank of high-speed salt water pumps is powered by synchronous motors, which find efficient adaptation in such nonhazardous locations

As for the mechanical specifications, choosing a motor for a certain job is a simple matter. Most processes in refining are fixed in scope and predetermined so that the power and speed requirements of the motor are easily computed. The location of the installation has an important bearing on the design of the motor to be used, for corrosive atmospheres demand the use of special materials in its manufacture, and the presence of explosive gases makes necessary the installation of safety motors.

In the large refineries of the Gulf Coast, approximately 85 per cent of the motors in use are of the simple squirrel-cage induction type. Ten per cent consist of various kinds of synchronous motors, and the remaining 5 per cent are variable speed, brush-shifting models.

Widespread use of the simple induction motor in refineries is obvious for many reasons. It operates over a wide range of horsepower, and is available in vertical and horizontal, open and closed design. Simply constructed without slip rings or commutator, the induction motor is attractive from standpoint of price, and the source of less trouble than other types in upkeep and damage from mechanical and corrosive forces. With the exception of the danger of sparks due to mechanical or insulation failures, the induction motor operates safely in hazardous locations. Used mainly in high-speed drives consisting of two-pole units, induction motors are also available for slower speeds through use of different motor windings and reduction gear drives. Generally, squirrel-cage motors are best adapted to medium-sized power jobs, up to 100 hp.

Although the synchronous motor has fewer advantages in the refinery, it serves an important function in the electrical system of the plant. Because the synchronous motor operates in step with the alternating current field, instead of lagging as does the induction motor, the use of that type is essential to reduce distribution costs and correct for power factor of the system. Units of 300-hp. size with low starting torques are best suited for refinery use.

Synchronous motors are generally installed in nonhazardous and noncorrosive locations. They are ideally adapted for the driving of compressors and water pumps. In the shops and refinery divisions where goods are handled mechanically, variable-speed motors find some application, but their use is limited and not directly related to regular refinery operation.

Application of electrical motors in specific cases best illustrates their adaptation in refining. In one large Gulf Coast plant, one-fifth of the entire connected electrical load is used in water pumping. Two water plants employing 14 pumping units totaling 3,600 hp. accomplish a movement of 90,000 g.p.m. of water. High-speed induction motors of 200- and 300-hp. design are used, demanding approximately 2,000,000 k.w.h. per month.

In the same refinery, the advantages of electrical power distribution have led to the decentralization of the loading facilities. Ocean-going tankers at the nearby refinery docks are loaded from storage extending over a wide area. In combating the disadvantages of a complex system of lines to and from a central pump house, refinery engineers have installed individual units throughout the terminal tank farm. The simplest system of lines from storage to dock is thus effected, by extending electrical transmission lines instead of pipe lines, and by placing the pumping units near the source of supply.

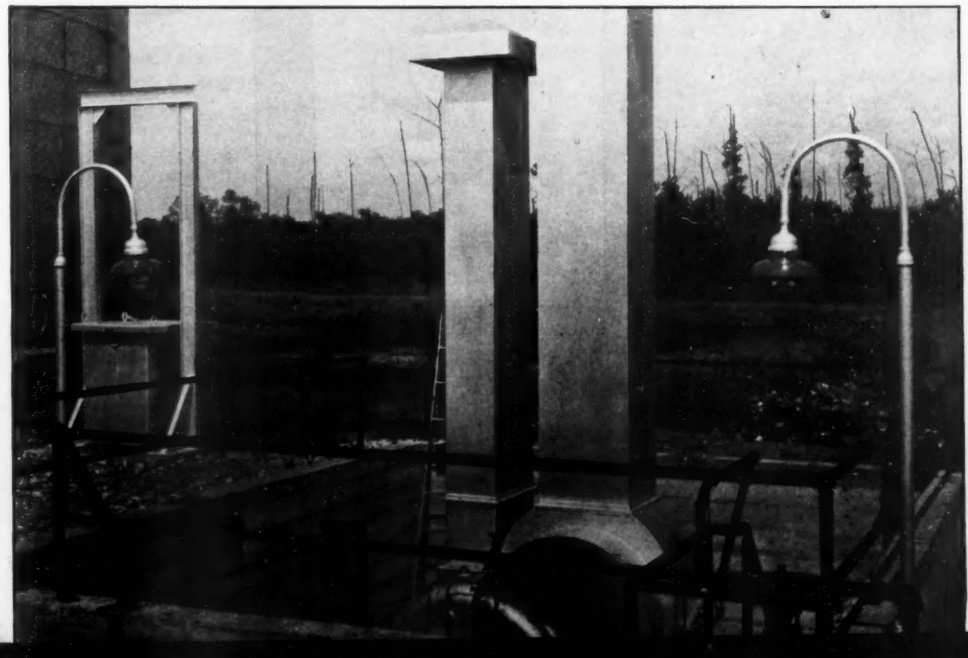
Seven such pumping units have been installed at the refinery tank farm. The motors which power the centrifugal pumps range from 250 to 500 hp. They are of weatherproof and base- or pipe-ventilated design. Through the reduction of power losses occasioned by a complex system of pipe lines, a high loading capacity is effected.

In general the larger installations of induction motors include hot oil pumps, oil charge, transfer and loading pumps. Countless smaller uses include forced draft, centrifuging, blending, filtering, mixing, agitation and compression. Synchronous motors are most commonly found in the ammonia compression units of chilling plants.

Among a number of representative refineries on the Gulf Coast, the average breakdown of electrical power demand is divided as follows:

	Pct.
Crude distillation and cracking	29 2
Cooling water pumping	20 4
Lubricating oil treating	12 4
Transfer pumping	4 3
Fresh water pumping	4 0
Loading	3 1
Miscellaneous	26 6

The large percentage of electrical power which falls in the miscellaneous group is a result of the diversified uses found in various individual refineries, such as gas plants, polymerization units, chemical manufacture, and shipping, in addition to the usual miscellaneous items of lighting, mechanical power, drainage and auxiliary stations.



Decentralization is a current trend in refinery loading pumps. In one refinery units such as the one shown are located throughout the terminal, loading directly to tankers at the local dock

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This steel ideally combines toughness, strength, hardness and resistance to shock, wear and fatigue and represents the result of years of metallurgical research.

The MINIMUM physical specifications of this steel are as follows:

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. . . . . 100,000 lbs. per sq. in.

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These minimum specifications are always greatly exceeded and illustrate the extra measure of safety that goes into all Kerotest Valves and Fittings in excess of 2000 lbs. test pressure.

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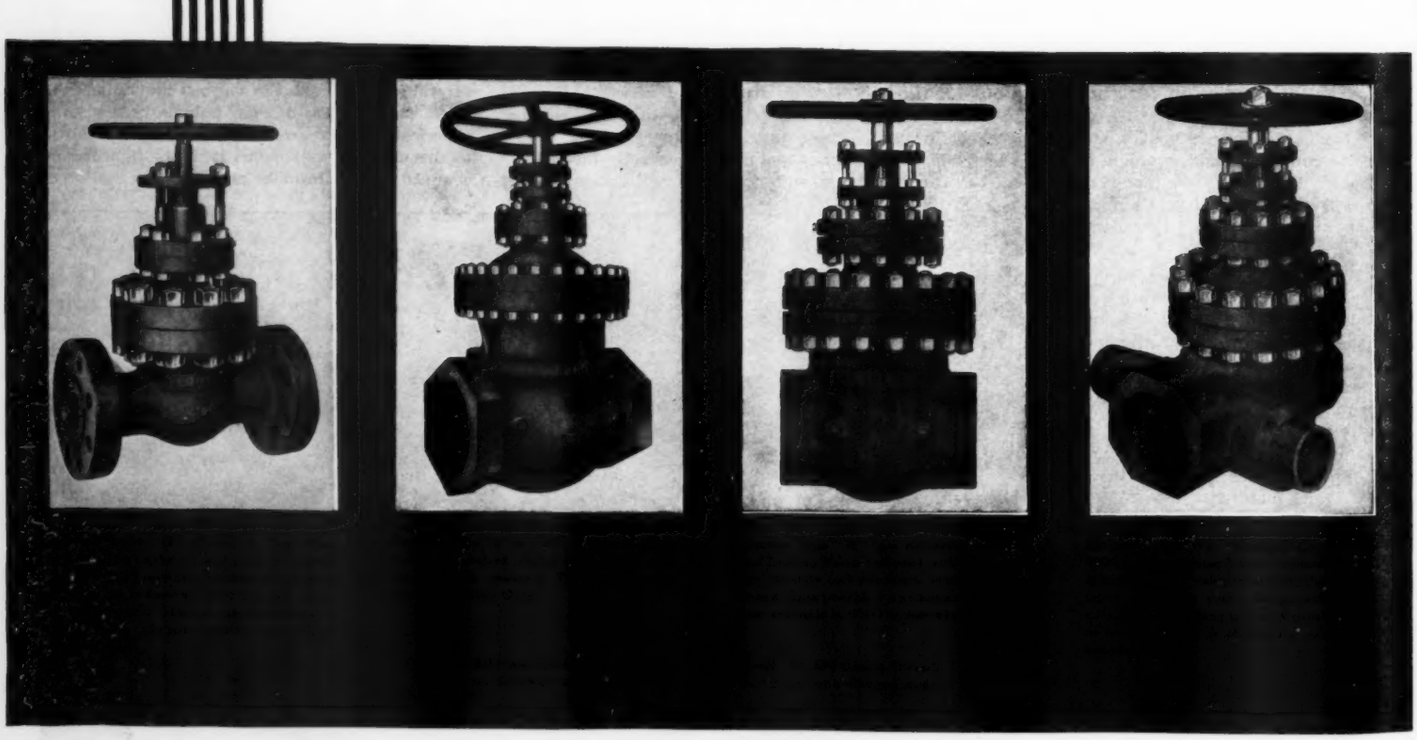


POLYMERIZATION in Relation to Natural Gasoline Manufacture

By HENRY N. WADE
Parkhill-Wade, Inc.*

During the past two years several papers have been published bearing on the practical operation of polymerization processes; however, much of this material has been prepared for the purpose of advocating one or another of the commercial processes now available. Much of it is also confused, from the standpoint of the natural gasoline manufacturer, by being based on "combination" operations, in which light products from oil cracking make up part or all of the feed to the polymerization unit.

The purpose of this paper is to present, in an entirely general and disinterested way, information regarding the present state of the polymerization art as applied to the conversion of the light materials which can be derived from stabilizer discard in the ordinary natural gasoline plant. From the standpoint of the natural gasoline plant owner, I will attempt to answer the following questions:

1. What is the general purpose of polymerization?
2. What commercially successful processes are now available?
3. How do they operate?
4. How much and what do they produce?
5. What is the plant investment cost?
6. What is the operating cost?
7. Under what conditions will a polymerization plant pay?

General Purpose of Polymerization

The general purpose of polymerization is to at least partially conserve for use as motor fuel the materials in the stabilizer discard, which in many natural gasoline plants are either wasted or else used for low-grade fuel purposes. By the polymerization operation the butanes, and to some extent propane, are partially converted into liquids having a normal gasoline boiling-range, and which consequently can be economically stored and handled with normal facilities.

In addition to conserving materials which might otherwise be wasted, it has been found that polymerization produces fuels having uniquely valuable properties, which will be discussed in the answer to question 4.

FIGURE 1

BREAKING DOWN STEP

Feed: Propane C_3H_8 (Saturated) + H,P,T = Ethylene C_2H_4 (Unsaturated) + Methane CH_4

Butane C_4H_{10} (Saturated) ± H,P,T = Propylene C_3H_6 (Unsaturated) + Methane CH_4

POLYMERIZING STEP

Ethylene C_2H_4 + Propylene C_3H_6 = Pentenes C_5H_{10}
Approx. Boiling Pt. 92° F. — Sp. Gr. 0.65

Or

Propylene C_3H_6 + Propylene C_3H_6 = Hexenes C_6H_{12}
Approx. Boiling Pt. 130° F. — Sp. Gr. 0.72

Commercial Processes Available

Two general types of plants are in commercial use; the straight heat-pressure-time type plants and plants in which a catalyst is used to assist in the conversion.

The "Unitary Thermal Polymerization Process" is representative of the first type; this process is owned and licensed by Polymerization Process Corp. through its licensing agent, M. W. Kellogg Co. This process was developed jointly by Phillips Petroleum Co., Standard of Indiana, Standard Oil Development Co., Texas Co. and M. W. Kellogg Co. The first commercial plant using this process is at the Alamo refinery of Phillips Petroleum Co. at Borger, Tex. This plant began successful operation around 1933, and has been increased in capacity several times since then.

It is obvious that many modifications of this type of operation are possible, depending both upon the nature of the raw feed and upon the nature of the final products desired.

The Dubbs "Catalytic Process" is, so far, the only commercial application of a catalytic process. This process is owned and licensed by Universal Oil Products Co. The first commercial plant using this process for converting straight natural gasoline plant stabilizer discard was placed in operation in March this year at the McKee gasoline plant of the Shamrock Oil & Gas Corp. in the North Texas Panhandle.

C.N.G.A. **— Presented before annual meeting, November 16, 1937, Los Angeles, Calif.**

Schemes of Operation

In order to make a heavy, gasoline-range hydrocarbon out of the light raw materials, propane and butane, it is obviously necessary to induce two or more molecules of the light materials to join together, forming a new molecule containing more than three or four carbon atoms, and consequently having a higher boiling point than the original propane or butane. Unfortunately, the propane and butanes extracted from natural gas belong to the "saturated" or paraffin series of hydrocarbons, and are very inert chemically. On this account, no direct method has yet been discovered for making the light paraffins combine together to form heavier ones.

However, it has been found that by subjecting the light paraffins to heat and pressure for a suitable length of time, they are broken down into other types of hydrocarbons which are "unsaturated," or contain more carbon relative to hydrogen than do the paraffins, and which are relatively active chemically. The light unsaturated compounds so produced can then be made to combine with each other to form heavier compounds, either by a suitable continuation of the heat-and-pressure treatment, or by the use of a catalyst.

Endless numbers and kinds of products may be producted by the initial breaking-down step, depending upon the degree of heat and pressure applied, and the time duration of the treatment. Likewise nature of the products of the final recombi-

*Presented under the author's title, "Present Status of Polymerization in Connection with Natural Gasoline Manufacture."

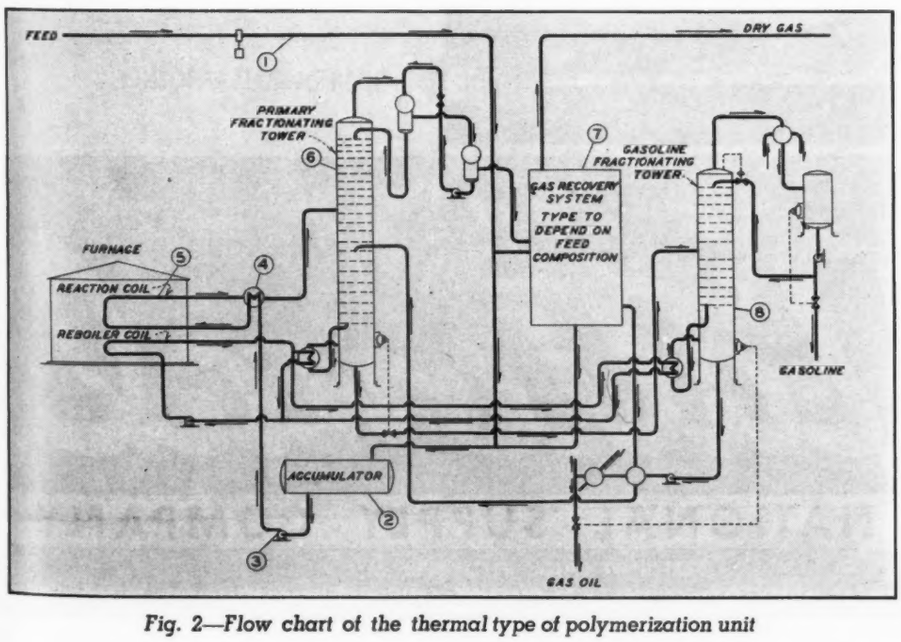
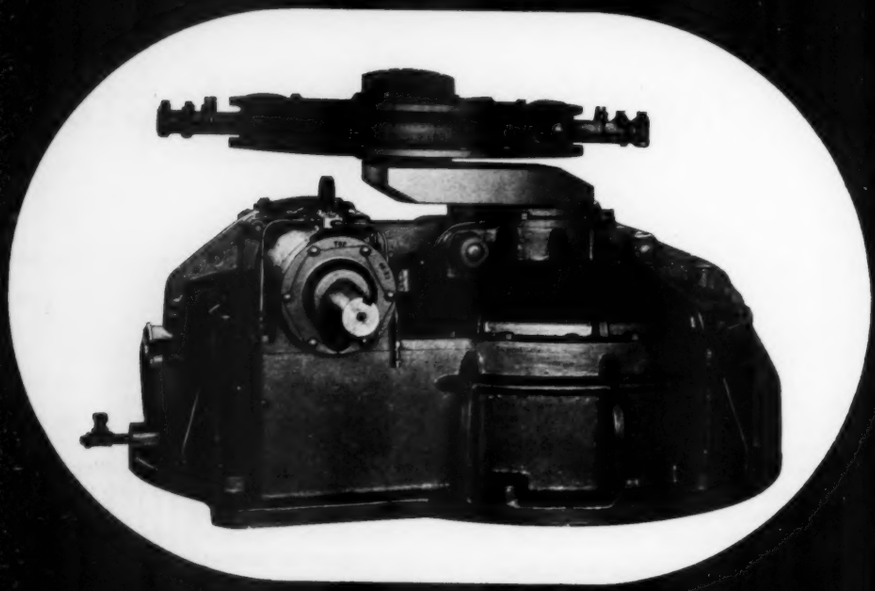


Fig. 2—Flow chart of the thermal type of polymerization unit

NATIONAL GEARED PUMPING POWERS

MEET ALL THE EXACTING REQUIREMENTS OF THE FIELD



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nation may be widely varied by the same factors.

Without going into the almost infinite mass of possible reactions which can and do take place, one set presented in Figure 1 serves to illustrate the general idea.

This is not intended to represent even a small part of the reactions which actually do take place; some idea of the tremendous complication of these may be gained from the fact that an analysis of the total final products of an operation will show everything from hydrogen gas to extremely heavy tars.

Both the straight thermal process and the catalytic process, then, use the initial heat-pressure-time step for converting the paraffin feed stock more or less completely into unsaturates. In the simple thermal process the conversion of the light unsaturates into heavy ones is accomplished along with the initial breakdown in one operation; in the catalytic process the conversion is partly accomplished by treating the fractionated products of the breakdown with a catalyst. In both processes the final step consists of fractionating out the undesired products, to yield a final liquid product of the desired boiling range. Both processes also require some recycling of materials in the thermal stage, since the reactions do not carry through to completion in a once-through process. The recycle material is derived from the fractionation following the primary conversion, and is made up of the unconverted paraffins and some of the unsaturates which are too light to retain in the final product.

Figure 2 shows a flow-sheet for the Unitary Thermal Process. The feed, consisting of stabilizer discard in liquid form, enters through line (1), and together with the recycle stock, flows to storage tank (2). Pump (3) delivers the liquid through feed exchanger (4), through the reaction coil (5) in the tube furnace, and into the fractionator (6).

In this fractionator all materials which are too light for use in the final product, including the unconverted propane and butane, are taken overhead and delivered to the "gas recovery system" (7), which can be of any suitable type, such as an absorption or compression unit.

The recovery system separates and discards to fuel all material lighter than ethylene, and makes two liquid products; one consisting of unconverted propane and butane and the corresponding C_3 and C_4 unsaturates, and the other consisting of the heavier unsaturates which can be used in the final product. The first of these joins the incoming raw feed for recycling. The heavier product is fed to the primary fractionator below the feed tray, where it largely mingles with the bottom product from the column.

The bottoms from the primary fractionator are fed to the gasoline fractionator (8), where the materials within gasoline boiling range are taken overhead and condensed to make the final product. The heavy materials are withdrawn from the bottom of this column, for use as gas-oil or fuel oil.

Figure 3 shows one of the many possible modifications of the above system; in this case designed for making special products. Here the feed is put through a primary polymerizing step, and the gases produced in this step are cracked, put through a second polymerization unit, and the products are finally fractionated and partially recycled through an absorption recovery system.

Figure 4 shows the flow-sheet of the Dubbs process plant of the Shamrock Oil & Gas Corp. The raw feed of fractionated butane first enters the storage tank (1) and is pumped by the feed pump (2) through the butane cracking furnace (3). Operating temperatures through the tubes of this furnace range from 1,000° to 1,150° F., with pressures ranging from 800 to 1,000 pounds. The primary breaking down and partial recombination steps occur in this furnace, the time element being provided by a large group of tubes on the outlet side of the furnace. From the cracking furnace the material passes in vapor form through reboiler exchanger (4) to the vapor cooler (5), and thence to the debutanizer column (6).

In the debutanizer column the primary separation is made between the heavy polymerized material formed in the cracking furnace and the light materials which require further polymerization in order to reduce them within a gasoline boiling range. The reboiler heat required for the operation of this column is secured by recirculating liquid from the bottom of this column through a part of exchanger (4) and back into the bottom of the column, by means of reboiler pump (7). The top temperature of the debutanizer column is controlled through a conventional reflux circuit, so as to take overhead only those materials which are too light to retain in the finished gasoline. This light material leaves the column through transfer line (8), which carries it to the strictly catalytic part of the system.

The first step in the catalytic treatment of these vapors consists of heating them to a controlled temperature. This is done in the butane vapor heater (9). The heated vapors then pass to the group of catalyst towers (10). These towers are arranged so that the vapors pass downwards through three of them in series, the fourth tower being available for regeneration while the other three are in operation. The piping and valves are so arranged that each tower in turn can be used for the first admission of the hot vapor; in this way the operation of the towers can be rotated so that the tower containing the most highly spent catalyst can be taken out of service when the freshly regenerated tower is put into service.

From the catalyst towers the material, still in vapor form, passes through condenser (11) into distillate receiver (12). The liquid condensate is pumped by charge pump (13) into depropanizer column (14), where materials lighter than butane are separated from the product and are discarded. This column is refluxed in a conventional manner; reboiler heat is supplied by steam.

The bottoms from this column pass through pipe (15) to stabilizer column (16), where materials too light to retain in the finished gasoline are taken overhead and returned to storage tank (1) for recycling through the entire process.

The bottoms from stabilizer (16) and the bot-

TABLE 1—ANALYSIS OF YIELDS

Comp.—	Charge: Cu. ft.	Charge: Pct. by weight	Charge: Pounds	Raw yield (gals.)*	Finished yield (gals.)	Yield (pounds)	Yield pct. total	Yield pct. butane
C_3H_8	31,000	56.6	3,600					
C_4H_{10}	18,000	43.4	2,758					
			6,358	480	408	2,460	38.7	89.3
C_3H_8	143,000	61.5	16,620					
C_4H_{10}	68,000	38.5	10,410					
			27,030	2,030	1,725	10,410	38.5	100.0

*Appr. 63.5° A.P.I., 500° E.P. raw poly liquid, losing appr. 15 per cent in reducing E.P. to 440° and clay treating.

TABLE 2—PHYSICAL PROPERTIES OF TYPICAL FINISHED POLY PRODUCT

A.S.T.M. DIST.	99° F.
I.B.P.	
5 per cent	118
10	124
20	135
30	146
40	158
50	174
60	192
70	214
80	251
90	316
95	374
E.P.	405
Rec., per cent	98
Res., per cent	1
Loss, per cent	1
Reid V.P., pounds	9.2

GENERAL QUALITIES

1. *High Volatility*—40 per cent over at 158°, against 20-25 per cent for ordinary gasoline.
2. *High Octane Number*—80 to 85 ON straight; blending value up to 110 depending on ratio and blending stock.
3. *Ease of Treating*—Vapor phase clay treats to 30 plus stable color and satisfactory gum (10 mgm/100 cc.).
4. *Composition*—Predominantly paraffinic hydrocarbons from paraffin feed (propane and butane). Product averages 62° to 65° A.P.I. gravity.

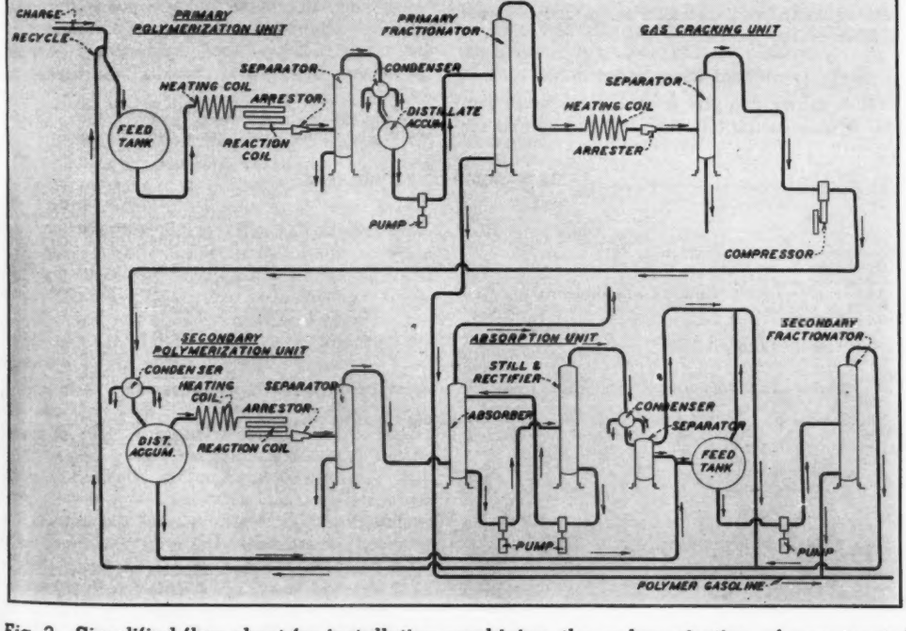


Fig. 3—Simplified flow sheet for installation combining the polymerization of unsaturated gases in a mixed gas, thermal decomposition and polymerization of the cracked material

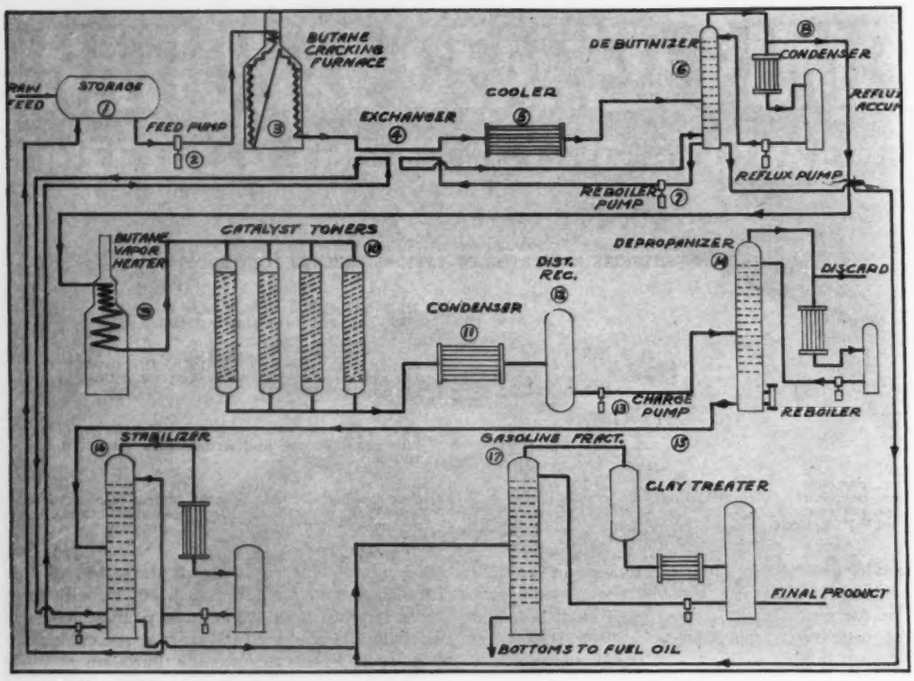


Fig. 4—Flow chart of combination catalytic polymerization process

toms from debutanizer (6) combined run to gasoline fractionating column (17), where the materials which are too heavy for the final product are separated as bottoms, the finished product being taken overhead, condensed and run to storage.

The process of regenerating the catalyst towers consists of passing through them products of combustion from a gas fire under controlled conditions of temperature, pressure, and water vapor saturation. This requires an air compressor for the necessary supply of air, a small pressure retort in which the combustion takes place, scrubbing equipment for removing carbon dioxide from the products of combustion, and a small auxiliary air heating furnace for controlling the temperature of the air passed to the catalyst towers.

The product from any of these processes must be treated for gum and color stability, and for sulfur if present. Vapor-phase clay treatment has been found satisfactory for gum and color stability; sulfur can usually be controlled by a strong caustic wash, or by several of the well-known standard sulfur treatments.

An analysis of yields for the Unitary Thermal Process is given by J. S. Carey.[1] He presents two cases showing the results from feeding propane-butane mixtures. Table 1 is based on his data.

Yields

The figures in Table 1 indicate a net yield of something like 35 to 40 per cent by weight of the feed can be expected from a fairly representative feed stock taken from a natural gasoline stabilizer. They also indicate that some appreciable conversion of propane must occur in this process, since the feed stock containing the larger percentage of propane shows the larger percentage of yield, referred to the quantity of butane in the feed.

The Shamrock Dubbs plant is being operated on practically pure fractionated butane, substantially free of propane. Under the most favorable operating conditions the yield of finished product is about 0.35 gallon per gallon of raw butane charged, indicating a recovery of about 45 per cent on the weight basis. The conversion of propane is felt to be so low by the advocates of this process as to not warrant the additional plant capacity required to handle it.

[1]Unitary Thermal Polymerization Process, J. S. Carey, Refiner Natural Gasoline Mfrs., Dec., 1936.

Nature of Product

Table 2 presents in condensed form the principal properties of the product. Its chief value lies in the qualities of high octane value and high volatility. These properties make the poly product particularly interesting for the manufacture of aviation fuels. The blending value for raising the octane number of other types of gasolines depends, of course, on the nature of the base stock and on the blending ratio. In one case blending about 25 per cent by volume of poly liquid with a straight-run gasoline of 40-octane number, the effective blending value runs from 105- to 110-octane number. In general, the higher the octane number of the base stock and the higher the percentage of poly liquid added, the smaller the effective octane number of the poly.

Plant Investment

It is difficult to give anything but quite general figures on the total investment required for building a polymerization plant, on account of the large number of variables which may affect the cost of any particular project.

Assuming a supply of raw material is available for the feed, the cost of a Dubbs plant to handle 1,000 bbls. per day of raw feed will run around $300,000, exclusive of storage and facilities for producing about 800 boiler horsepower of steam and for providing the compressed air required for the regeneration of the catalyst towers. The cost of a Polymerization Process Corp. plant will probably run about the same, although no definite figures are available covering such a plant to treat straight natural gasoline stabilized discard.

The cost of the installation required to provide the feed stock will, of course, vary widely with plant conditions. It may be necessary to increase greatly the oil-circulating capacity of the gasoline plant in order to get the necessary extraction of butane or butane-propane. This may mean doubling the gasoline plant facilities, or more. In any event, a considerable investment is necessary in equipment to capture and prepare liquid butane from the plant vent vapors. In the case of the Shamrock plant built last winter, the cost of the plant modifications required to provide a feed of 1,000 bbls. per day of fractionated butane was approximately equal to the cost of the polymerization unit itself.

The cost for larger units will, of course, not go up in direct ratio with the capacity—for example, a plant to handle 2,000 bbls. per day of raw feed would probably cost not over 150 per cent of the very rough figures given above.

Costs of Production

A cost analysis for operation of the Unitary Thermal Process is presented in Table 3. The figures for direct operating costs are based on a similar analysis given by Keith and Ward.[2] The figures in that article are for a plant producing 2,100 bbls. per day of product, operating on refinery gas containing 22.3 per cent of unsaturates; the same operating cost figures were used in the first column of Figure 9 of their article. The figures for the 1,000-bbl. plant are based on the assumption that most items of operating cost, also the plant investment, would be about two-thirds of the figures for the larger plant.

In this analysis of costs there are two items which may be open to question. The first of these is the value of 1 cent per gallon placed on the charging stock. It is felt that this is a reasonable and conservative value based on average operating conditions; however, if there is any market for

[2]Motor Fuels of High Octane-Blending Value Produced by Thermal Process, P. C. Keith, Jr., and J. T. Ward, The Oil and Gas Journal, Nov. 28, 1935.

TABLE 3—COSTS OF PRODUCTION

		Daily Propane-Butane Feed 319,200 gals. / Daily Production 2,100 bbls.	Daily Propane-Butane Feed 152,000 gals. / Daily Production 1,000 bbls. (Est.)
Direct operating cost, per calendar day:			
Operating labor		$80	$80
Operating supplies		5	4
Maintenance (@ 4% annum on investment)		137	93
Fuel, @ 80c bbl.		243	162
Steam, @ 30c/1,000 lbs.		23	16
Power, @ ¾c/KWH		412	274
Water, @ 1c/1,000 gals.		117	78
General expense		30	20
Total operating cost/day		$1,047	$728
Debit:			
Net Charge, on basis 37% net yield by weight, evaluating liquified propane-butane charge at 1c/gal. fuel value and cost of preparation		$3,192	$1,520
Direct operating cost, as above		1,047	728
Fixed charges, basis—Interest	5%		
Obsolescence and depreciation	20%		
Taxes and insurance	2%		
Total fixed charges	27%		
2,100-bbl. plant investment	$1,250,000	925	
1,000-bbl. plant investment	833,000		616
Total debits		$5,164	$2,864
Credit: Gas oil produced	232 bbls. @ $1.30	301	
Gas oil produced	110 bbls. @ 1.30		144
Net total cost per day		$4,863	$2,720
Net cost/gal. of poly gasoline		5.51c	6.48c

the butane or propane-butane mixture as such, this value would be in most cases much too low.

The second item which may be open to question is the rather high charge of 20 per cent for obsolescence and depreciation. It is felt that. in the present state of the art, this rate is justified for two reasons. In the first place, a good deal of the equipment is required to operate under rather extreme conditions of pressure and temperature, which lead to rapid deterioration. Secondly, it is felt that future developments are likely to make plants, built according to present ideas, obsolete to a greater or less degree in a comparatively short time.

As shown by the final figures, assuming the reasonable accuracy of the detail costs presented, the net cost at the plant of the finished poly gasoline is about 5½ cents per gallon for a plant producing around 2,000 bbls. per day, and about 6½ cents per gallon for a plant producing 1,000 bbls. per day. These plants would require a raw feed of about 320,000 gallons per day and 152,000 gallons per day, respectively.

It should be noted that the figures presented are based on the straight thermal process, where mixtures of propane and butane similar to those presented in Table 1 are charged to the unit. If substantially pure fractionated butane is charged, as in the Dubbs process, the amount of butane must be increased correspondingly to produce the same total final yields. I have shown that the yield from typical butane-propane mixtures is about 37 per cent by weight, whereas the yield from straight butane feed through the Dubbs process is about 45 per cent by weight. This would mean that for an equal yield of final product, the total weight of straight butane charged to the Dubbs process would be only about 82 per cent of the total weight of butane-propane mixture required for the thermal process; however, the amount of butane itself required for the Dubbs process feed would be just about double the amount of butane required in the mixed feed to the thermal process for the same total amount of final product.

The question of whether or not a polymerization unit will pay is purely a question of determining whether the value of the material produced at the time and place under consideration exceeds the approximate cost as indicated by the figures presented in Table 3. Considering the poly product itself for use straight as motor fuel, there are probably very few locations at the present time where a profit could be shown in competition with other methods of producing motor fuel. However, there may obviously be cases where the value of the poly product for blending purposes may be much greater than its value if used straight for motor fuel. This question must, of course, be worked out on the merits of each individual case.

In the case of the Shamrock unit, the owner company had an oil refinery which produced gasoline of low octane number, making a base blending stock which could use the peculiar properties of the poly product to greatest advantage. In spite of the fact that the value of the finished motor gasoline at the refinery was in the neighborhood of 4½ per cent, the value assignable to the improvement of octane number of the finished product obtained through the use of the poly gasoline indicates a very satisfactory profit on the operation of the poly unit.

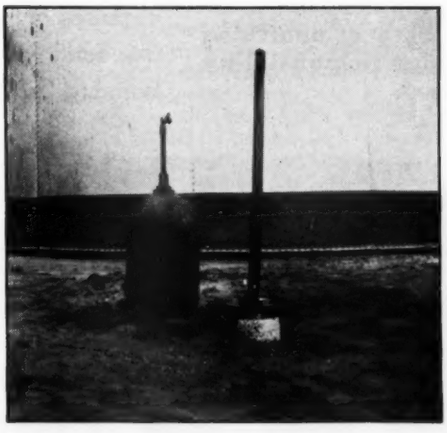
Automatic Shut-Off Valves Exclude Air From Oil-Gathering Systems

For excluding air from pipe line gathering systems, an automatic shut-off valve has been designed and made by James A. Gaines, formerly station engineer for the Oklahoma Pipe Line Co. in the Hewitt field, Oklahoma. The marked improvement in gathering line operation resulting from the use of this means of eliminating trouble due to air in the lines has led to the recent installation of 50 of these valves on the gathering system of one of the major pipe line companies in the Keokuk field, north of Seminole, Okla.

The device has been patented and preparations are being made to have it manufactured and sold. The main feature of the valve is a chamber containing a float connected with a valve in the gathering line. As a result of air in the line entering the float chamber, through a riser, the float is lowered, closing the valve immediately. It remains closed until the vacuum is broken by the release of air from the float chamber. Resetting the valve is quickly accomplished.

The need for such a device has been recognized ever since oil was first run from lease tanks. Old timers in pipe lining knew that if they could get rid of vapors in the line they could stop a vicious series of troubles. In long gravity systems it has been commonly observed that one tank, letting air into the line can "pocket" the whole line and block it as completely as a gate valve; after hours of pumping nothing but air can be exhausted from the line. When the b.s. and w. level happens to be too high in the tank, the entrance of air into the line can suck contamination of the oil from this source. To stop air troubles in the past, some pipe liners have put croquet balls in lease tanks; these would follow the vortex of the swirl to the suction. Furthermore, pipe line engineers have ascertained that the exclusion of air is important for maintaining the gravity of the oil during the subsequent stages of handling. By keeping out air, dilution is stopped and light products are preserved.

In addition to advantages of proper preservation and prevention of dilution of the transported oil, a number of important savings have been noted in the course of observations made in the districts where the Gaines automatic control valve has been in use: It is estimated that the cost of handling oil from the field through the gathering system has decreased between 30 and 50 per cent. It has been found possible to increase the radius covered by a gathering system. In average cases, it is stated that the run time has been reduced by half, thus making it possible to move larger quantities of oil through the gathering systems.



Automatic shut-off valve installed at lease battery in Keokuk pool, Oklahoma

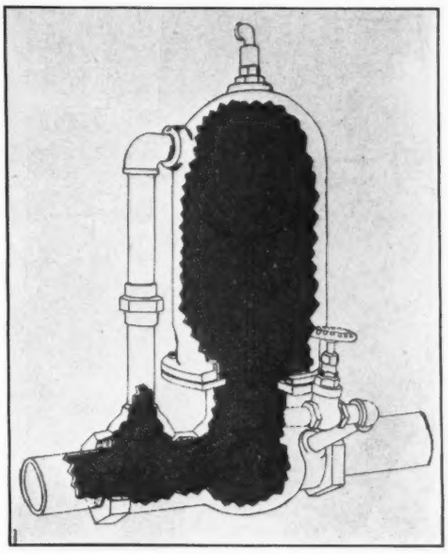


Diagram showing method of installing

Effect of Better Lubrication on Motor Car Operation

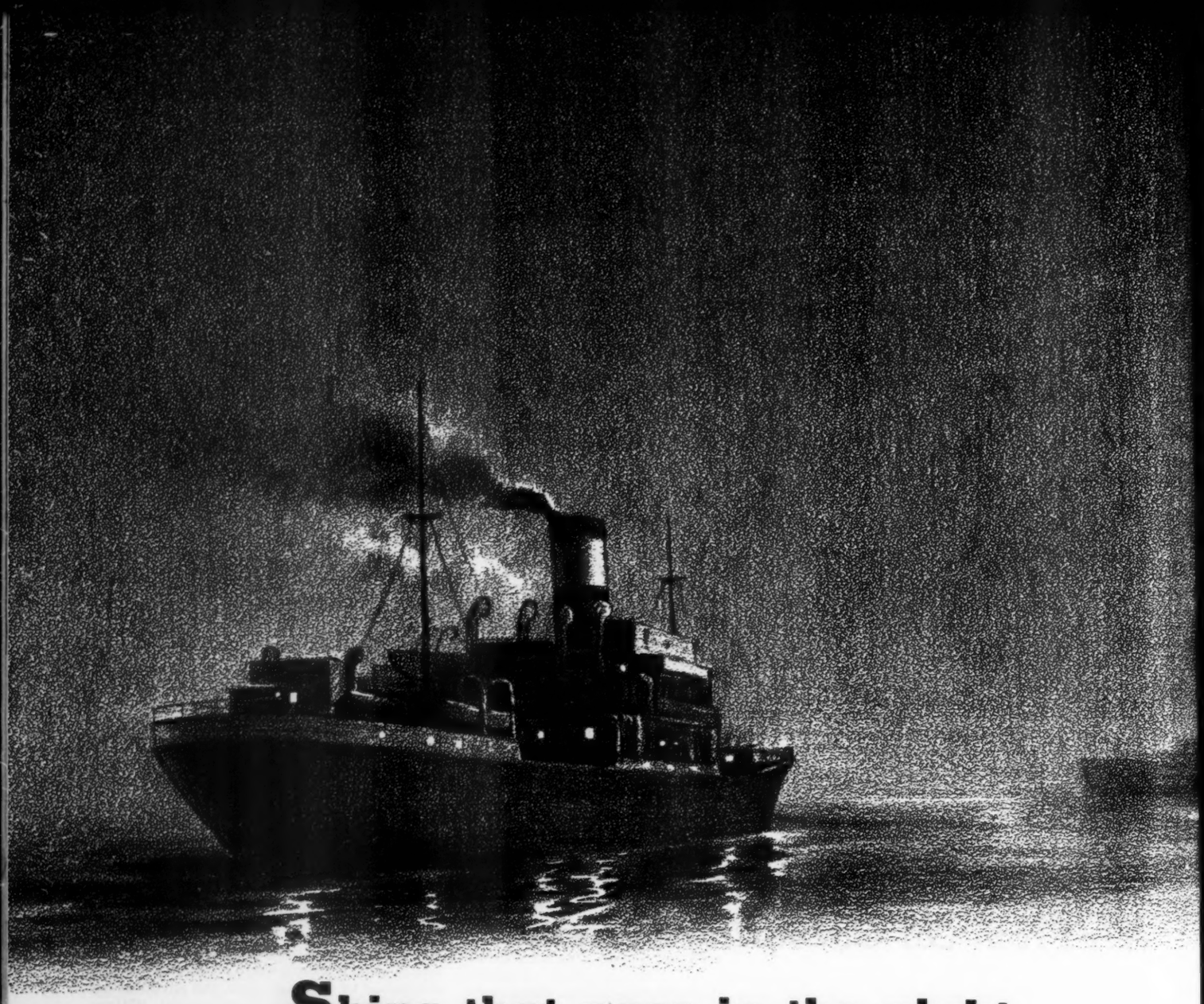
Speaking on "The Relation of Cleanliness to Better Lubrication and Motor Car Economy," before the Mid-Continent branch of the Society of Automotive Engineers, L. C. Eldridge of Shell Petroleum Corp., St. Louis, Mo., pointed out that the intrinsic and economic worth of any equipment is determined by its usage value, and anything that improved its usage values is economical. Without lubrication the usage value of modern machine equipment would be less than nothing, he stated.

"The value of business and industrial equipment in this country today reaches staggering proportions. During the period of motorization, many difficult problems of lubrication were encountered before engineers succeeded in prolonging motor life to a point where it was economically profitable. The problem as regards the automotive engine is of no less magnitude. A glance at the statistical picture of the automobile in this country gives one a better conception of its importance:

Estimated number of passenger cars in the United States	27,750,000
Estimated number of trucks in the United States	4,500,000
Average yearly mileage per passenger car	7,500
Average speed per passenger car, miles	30

"The average age of these 32,250,000 motor cars—whose value reaches into the billions of dollars—is 8.4 years, although a few reach the ripe old age of 15 years, while many are worn out in three or four years. On this basis, the average mileage life of automobiles approximates 63,000 miles."

In conclusion he pointed out, ". . . it appears logical and consistent to conclude that we who are engaged in the oil and the automotive industries have an obligation to our mutual customers—the motoring public—to lay aside our individual interests in this vital question of lubrication. We must join in formulating and publicizing a practical, logical, instruction program that will increase the usage value of automotive equipments."



Ships that pass in the night

Dim, shadowy forms on the horizon—the faint gleam of lights, the sound of music and voices—all fade into the mist and are gone. Many of the builders and engineers to whom construction jobs are entrusted are like ships that pass in the night. They are here today soliciting business and satisfactorily handling it, but gone tomorrow when service, maintenance, or replacement problems arise. That is why the Fluor policy of undivided design, engineering, and construction responsibility pays continuing structural dividends.

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Compressor plant installation for a large California oil company.

Portion of de-waxing plant built for oil company operating in middle west.

Interior view of iso-octane plant constructed for a mid-continent oil company.

Chillers and control house in the phenol plant of a California oil company.

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Progress in METALS

By W. L. NELSON

Low Temperature Strength of Molybdenum Steels

Data on the impact strengths of molybdenum steels were published in the September issue of the Moly Matrix by the Climax Molybdenum Co. The Charpy impact test was used throughout because of the ease in transferring and handling the specimens without permitting them to warm.

The steels were studied in three conditions; namely, normalized, quenched, and drawn to 200 Brinnell, and quenched and drawn to 300 Brinnell. Of these, the quenched and tempered specimens retained their strength to the greatest degree at low temperatures and the best results were with the 300 Brinnell number specimens which results are summarized in Figure 1. For those who are not familiar with the Society of Automotive Engineers classification numbers for steels, the approximate chemical analyses of the S.A.E. steels shown in Figure 1 are given in the following tabulation.

	Per cent				
S.A.E.	Carbon	Moly.	Manganese	Chromium	Nickel
1045	0.45	.	0.75		...
4130	0.30	0.20	0.65	0.65	...
4140	0.40	0.20	0.75	0.95	...
4340	0.40	0.35	0.65	0.65	1.75
4615	0.15	0.25	0.55	...	1.83
4640	0.40	0.25	0.65	...	1.83
4815	0.15	0.25	0.50	...	3.5

The following conclusions were drawn:

"1. It is generally necessary to quench and draw the steels to obtain the best impact properties. The tendency towards higher impact properties after quenching and drawing is not as noticeable in the nickel-molybdenum steels as in the others. This is consistent with the known effect of nickel on low temperature impact properties.

"2. Hardness as measured at room temperature has surprisingly little effect on the properties.

"3. Inherent grain size (as measured by the McQuaid-Ehn test) does not seem to have great influence on the impact properties, but the heat-treated size of the crystals, or grains, does substantially affect the results. This can be noted in the normalized steels where the temperature from which the steel was cooled is much higher than that in the quenched and drawn specimens, the grains being larger in the normalized specimens. The need for small crystal size for good low-temperature impact has been known for some time.

"4. An examination of the impact properties of the carbon-molybdenum steel even in the heat treated condition indicates duplex grains are not desirable in steels to be subjected to impact loads at low temperatures.

"5. All the tests point to the fact that low-cost molybdenum steels in the quenched and drawn conditions can meet almost any requirement for low impact properties likely to be encountered in modern industrial practice."

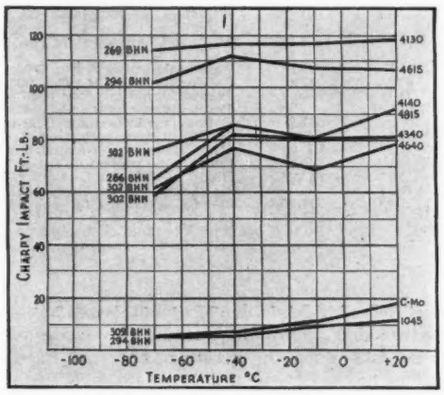


Fig. 1—Low-temperature impacts of molybdenum steels, quenched and drawn to approximately 300 B.H.N.

Manganese Steels in the Petroleum Industry

Manganese is an essential element in nearly all commercial steels because of its ability to combine with sulfur and to control the oxygen content of the steel. Thus, the small amount of manganese that is always found in steel is not an impurity but is the excess that is left after performing the above services. In amounts larger than 0.3-0.4 per cent manganese may be considered as an alloy element.

The manganese steels may be classified into two groups—the low manganese (1-2 per cent) structural, machine and casting steels, and the high manganese (11 per cent) steels for extreme shock resistance. A principal use of the low manganese steels in the petroleum industry is for cast bodies of drill-bits, core-bits, etc. Manganese steel castings are particularly free from blowholes and irregularities, and a high strength can be attained by a simple air-quench rather than a complicated quenching and tempering operation. A low manganese steel having the composition of 0.4 per cent carbon, 1.2 per cent manganese, and 0.3 per cent silicon is used extensively for sucker-rods. These rods can be used up to stresses of 30,000 pounds per square inch in noncorrosive wells and hence can be used for most medium depth wells. Stronger rods are available but at a price far higher than the relatively low-cost manganese steel rods. The relative properties of several sucker-rods are given in Table 1. The fatigues or endurance limit is of primary importance in sucker-rod service and hence this property is given rather than the elastic limit.

The silico manganese steels are used in Europe as structural and automotive steels but in general their sensitivity to heat treatment, etc., has deloyed their use in the United States. The suitability of these steels for use at low temperatures, such as those encountered in modern solvent dewaxing processes, has been investigated.[1] Thus far the silico manganese steels have not been found satisfactory because they lack consistency with regard to shock resistance properties but perhaps this inadequacy is due mainly to methods of control. Steels having the approximate composition, carbon 0.15-0.24, Mn 1.1-1.5, Si 0.2-0.5 and small amounts of chromium and nickel were found to have Charpy impact valves at minus 50° F., ranging from 1 to 32 foot pounds. Unless more consistancy of results is attained by better controlled methods of manufacturing, the silico manganese steels will not invade the position that the low nickel steels now occupy in the subzero field of shock resistant steels.

The manganese molybdenum steels are particularly fitted for manufacture of cast steel valves because of their great ability to resist shock or impact and the soundness of the castings. In the quenched and tempered condition the manganese (0.4 per cent) molybdenum (0.3 per cent) steels have an elastic limit of about 86,000 pounds per square inch whereas carbon steel has an elastic limit of only 61,000. Though the strength is not particularly high, the relatively low cost of such steels makes them valuable for many purposes. Manganese moly steels have also been investigated with regard to creep strength and although they do exhibit greater strength than carbon steel, they are scarcely better than the plain carbon molybdenum steels and are probably less resistant to high temperature scaling or rusting than either of the aforementioned steels.

[1]Blumberg—The Oil and Gas Journal, page 78, June 13, 1935.

TABLE 1—PROPERTIES OF SUCKER-ROD STEELS

Type—	Approx. composition	Endurance limit	Heat treatment	Recommended working stress
Plain carbon	0.5 carbon	35,000	No treatment	21,000
Plain carbon	0.5 carbon	47,000	Fully normalized	28,000
Plain carbon	0.5 carbon	66,000	Normalized, quenched and tempered	40,000
Carbon manganese	0.4 carbon-1.2 Mn.	52,500	Fully normalized	31,000
Chrome moly	0.3 carbon-.65 Cr.-.2 Mo.	74,500	Normalized, quenched and tempered	45,000

Metallurgical Terms—Killed Steel

During the final stages of melting a steel, a deoxidizing material such as ferromanganese, ferrosilicon or aluminum is added to remove oxide materials such as iron oxide, silicon oxides, etc., and for the purpose of adding carbon and other elements to the steel. Gases are also dissolved in the steel at this stage and the steel is referred to as "wild" because it tends to boil violently in the furnace, ladle or molds. The deoxidizer quiets or "kills" the steel so that blowholes, pipes and surface defects do not occur in the final product. The operation of allowing the steel-melt to stand for a few minutes after the deoxidizer is added is referred to as "killing" the steel,

Obviously, the evolution of gases in a steel after it begins to solidify will result in an unsound product. However, a steel can be too "dead" or be killed for too long a time because such steels are unduly hard and brittle. Yet the finest grades of steel can be prepared by a careful selection of the deoxidizing agent and by a careful regulation of the killing time. Killed steels are particularly suited to high temperature service because of their soundness.

1937 Road Knock Tests

Report From Cooperative Fuel Research Committee

By T. A. BOYD
General Motors Research Corp.*

Ever since the first cooperative road knock tests were made at Uniontown, Pa., in 1932[1, 2] it has been the policy of the Cooperative Fuel Research Committee to sponsor such additional road tests as have appeared to be necessary in order to keep the correlation between laboratory knock ratings and road knock ratings up to date. In accordance with this policy, an extensive series of road tests was again made at Uniontown in 1934, the results of which were reported to this Institute

A.P.I. — Paper presented at annual meeting, Chicago, 1937.

in November of that year.[3, 4] In both cases it was concluded that, on the whole, a satisfactory degree of correlation existed between average road knock ratings and laboratory knock ratings as determined by the CFR motor method currently designated as ASTM Method D-357-36T.

Continuing this policy of keeping the correlation up to date, about a year ago the Cooperative Fuel Research Committee again authorized an immediate and active study of the correlation between laboratory knock ratings and road knock ratings in current automobiles. As a preliminary step in this study, a survey was made of road-test data that were made available to the committee by individual companies on 1934, 1935, and 1936 cars. This survey was completed in December, 1936, and the conclusions drawn therefrom were as follows:

"1. Based on the available car data, a revision of the ASTM knock-testing procedure is indicated.

"2. These data, while sufficiently extensive to indicate trends, are not so complete as is desired for use as a basis upon which to revise the procedure, but they may be used as the basis for a reasonable approximation.

"3. The above approximation should be based on fuel sensitivity as defined by the difference between research and motor methods.

"4. It is imperative that a correlation program embracing both road and laboratory work be instituted at once in order to:

(a) Define more exactly the relation between fuel sensitivity and car performance.

(b) The effect of other factors on correlation particularly ignition timing and manifold design characteristics.

(c) To keep the basic correlation data abreast of car-performance changes and field requirements."

With the support of the conclusions from this preliminary survey indicating certain departures from correlation between laboratory knock ratings and road knock ratings, a program of coordinated but decentralized road tests on 1937 cars to be carried out by individual cooperating companies was authorized on January 9.

A Road Test Planning Group was appointed to cooperate with the Institute's Automotive Survey Committee in making arrangements for the tests.

Participation

An invitation to participate in these tests was extended to all organizations which might be in a position to take an active part in them. Among the contributors to this work were a number of companies who had not previously taken part in programs of this kind and whose participation was welcomed both because of the added strength given to the data thereby and because of the wider appreciation of the meaning of these tests which would naturally result from the widest possible representation.

Participants

In all, 24 companies volunteered to take part in this program and they are listed as follows:

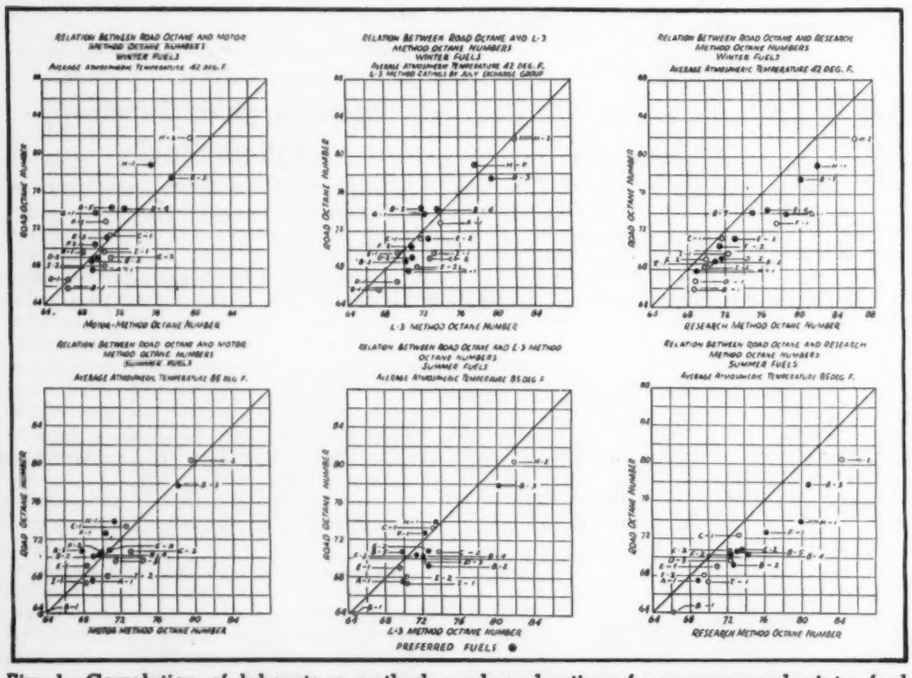
The Atlantic Refining Co.

TABLE 1—DESCRIPTION OF WINTER AND SUMMER FUELS

Two series of test gasolines were employed: (*a*) a ser ies having winter volatility characteristics, and designated by the prefix letter *W*; (*b*) a corresponding series of fuels of summer volatility, and designated by the prefix letter *S*.

Winter	Summer	Type	Added Material
WA-1*	SA-1*	Pennsylvania straight-run	$PbEt_4$ (2 cc.)
WB-1	SB-1	Mid Continent straight-run (50 per cent cracked)	None
WB-2*	SB-2*	Mid Continent straight-run (70 per cent cracked)	$PbEt_4$ (0.2 cc.)
WB-3*	SB-3*	Mid Continent straight-run (30 per cent cracked)	$PbEt_4$ (2.2 cc.)
WB-4*	SB-4*	Mid Continent straight-run (50 per cent cracked)	Alcohol (10 per cent)
WB-5*	SB-5*	Mid Continent straight-run (50 per cent cracked)	Benzol (18 per cent
WC-1	SC-1	California straight-run (100 per cent)	None
WC-2	SC-2	California straight-run (100 per cent—not same as WC-1)	$PbEt_4$ (0.5 cc.)
WD-1		Pennsylvania cracked (100 per cent)	None
WD-2*		Pennsylvania cracked (100 per cent)	$PbEt_4$ (0.4 cc.)
	SD-3	Pennsylvania cracked (100 per cent)	$PbEt_4$ (0.9 cc.)
WE-1	SE-1	Mid Continent reformed (100 per cent)	None
WE-2*	SE-2*	Mid Continent reformed (100 per cent)	$PbEt_4$ (0.4 cc.)
WF-1	SF-1*	California cracked (100 per cent)	None
WF-2*	SF-2*	Blend of California cracked and straight-run	$PbEt_4$ (0.2)
WG-1*		Mid Continent cracked (100 per cent)	None
WH-1*	SH-1*	Coastal cracked (100 per cent)	None
WH-2	SH-2	Coastal cracked (100 per cent)	$PbEt_4$ (0.5 cc.)
WI-1	SI-1	East Texas cracked (100 per cent)	$PbEt_4$
WI-2	SI-2	East Texas straight-run (100 per cent)	$PbEt_4$ (0.75 cc.)

*Preferred.


RELATION BETWEEN ROAD OCTANE AND MOTOR METHOD OCTANE NUMBERS WINTER FUELS
AVERAGE ATMOSPHERIC TEMPERATURE 42 DEG. F.
ROAD OCTANE NUMBER
MOTOR-METHOD OCTANE NUMBER
RELATION BETWEEN ROAD OCTANE AND L-3 METHOD OCTANE NUMBERS WINTER FUELS
AVERAGE ATMOSPHERIC TEMPERATURE 42 DEG. F.
L-3 METHOD OCTANE NUMBER
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AVERAGE ATMOSPHERIC TEMPERATURE 42 DEG. F.
RESEARCH METHOD OCTANE NUMBER
RELATION BETWEEN ROAD OCTANE AND MOTOR METHOD OCTANE NUMBERS SUMMER FUELS
AVERAGE ATMOSPHERIC TEMPERATURE 85 DEG. F.
MOTOR METHOD OCTANE NUMBER
RELATION BETWEEN ROAD OCTANE AND L-3 METHOD OCTANE NUMBERS SUMMER FUELS
AVERAGE ATMOSPHERIC TEMPERATURE 85 DEG. F.
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AVERAGE ATMOSPHERIC TEMPERATURE 85 DEG. F.
RESEARCH METHOD OCTANE NUMBER
PREFERRED FUELS

Fig. 1—Correlation of laboratory methods and road ratings for summer and winter fuels

*This paper is a progress report of the Cooperative Fuel Research Committee, dealing with the road-test portion of the study of the knock-rating correlation problems. It is proposed that these results and those obtained in the laboratory be the basis of further study aimed at the development of better correlation between road and laboratory ratings.

Personnel of the Road-Test Planning Group—T. A. Boyd (chairman), A. L. Clayden, L. L. Davis, Graham Edgar, J. B. Mcauley, J. R. MacGregor, J. B. Rather, and J. R. Sabina.

The Institute's representatives of the Automotive Survey Committee were—A. L. Clayden, B. R. Carney, and Neil MacCoull.

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TABLE 2—LABORATORY RATINGS OF WINTER FUELS

Fuel—	Motor (ASTM)		Research		L-3	
	Road group	Exchange group	Road group	Exchange group	Road group	Exchange group
WA-1	69 2	69 8	68 9	69 1	69 8	70 5
WB-1	66 6	66 6	68 6	67 8	67 0	67 3
WB-2	69 1	69 2	70 9	71 0	69 9	70 2
WB-3	77 8	78 2	80 1	79 8	78 9	79 4
WB-4	72 6	72 2	76 6	75 7	73 7	73 7
WB-5	71.3	70 7	75 0	74 4	71.8	71 9
WC-1	71 1	70 9	71 5	72 1	71 6	71 8
WC-2	71 3	72 2	69 9	70 6	72 0	72 7
WD-1	66 6	66.9	68 8	68 9	67 8	69 2
WD-2	69 7	69 5	71 6	71 4	71 0	70 8
WE-1	68 2	68 2	70 5	70 5	69 3	69 4
WE-2	70 8	70 8	73 1	73 1	72 0	72 4
WF-1	70 7	71 4	77 6	77 1	72 6	73 9
WF-2	69 5	69 2	71 4	71 0	70 6	70 7
WG-1	69 6	69 7	78 6	75 6	71 9	72 2
WH-1	75 6	75 7	82 0	81 5	77 6	77 6
WH-2	79 8	80 2	86 0	85 7	80 4	82 0
WI-1	70 4	71 3	72 3	73 4	70 7	73 2
WI-2	70 5	70 9	69 8	69 2	70 6	71 4

TABLE 3—LABORATORY RATINGS OF SUMMER FUELS

Fuel—	Motor (ASTM)		Research		L-3	
	Road group	Exchange group	Road group	Exchange group	Road group	Exchange group
SA-1	68 9	68 8	68 7	68 3	69 8	70 0
SB-1	63 2	63 6	66 1	65 8	65 2	64 7
SB-2	70 1	70 5	72 6	72 8	71 3	72 3
SB-3	78 1	78 3	80 7	80 9	79 1	80 1
SB-4	69 7	70 0	74 2	74 2	71 4	71 8
SB-5	67 8	68 0	73 0	72 7	70 0	69 8
SC-1	72 6	72 0	73 2	72 8	....	73 2
SC-2	73 0	73 2	72 2	71 7	....	73 7
SD-3	71 4	71 0	72 4	72 1	72 3	72 1
SE-1	68 4	68 1	70 9	70 5	....	69 5
SE-2	70 7	70 7	73 3	73 3	72 0	72 5
SF-1	70 4	70 8	76 1	74 9	73 5	72 3
SF-2	69 8	69 8	72 4	72 8	71 7	71 5
SH-1	71.3	71 6	77 9	76 6	74 4	73 5
SH-2	79 6	79 5	84 3	84 3	....	81 9
SI-1	68 4	68 6	69 8	70 2	69 4	70 3
SI-2	70 6	69 9	69 4	69 2	71 3	70 3

Chrysler Corp.
Continental Oil Co.
Deep Rock Oil Corp.
Ethyl Gasoline Corp.
General Motors Corp.
Gulf Research & Development Co.
Mid Continent Petroleum Co.
National Bureau of Standards.
Pacific Coast Technical Group:
- General Petroleum Corp. of California.
- Shell Oil Co.
- Standard Oil Co. of California.
- Tide Water Associated Oil Co., Associated Division.
- Union Oil Co. of California.

Panhandle Refining Co.
Phillips Petroleum Corp.
Shell Petroleum Corp.
Sinclair Refining Co.
Skelly Oil Co.
Socony-Vacuum Oil Co., Inc.
Standard Oil Development Co.
Standard Oil Co. (Indiana).
The Texas Co.
Tide Water Associated Oil Co.

Fuels Used in 1937 Road Tests

Two series of fuels were designated for this work. One of these was a series of 19 different fuels of conventional winter volatility and representing a wide variety of gasolines; the other was a corresponding series representing the same types of gasoline but having summer volatility characteristics. A tabulation of these fuels is given in Table 1. Since one of the purposes of the tests was to investigate the effects of atmospheric temperatures on road knock ratings, the fuels in the series having winter volatility, and designated as the *W* series, were tested at comparatively low atmospheric temperatures. The fuels having summer volatility characteristics, designated as the *S* series, were tested at summer atmospheric temperatures.

Preference was given to 10 of the *W* series and 9 of the *S* series fuels when for some reason any one organization was unable to use all the fuels listed. As a result, the data on the preferred fuels are more complete than those pertaining to the remaining fuels. The preferred fuels are so designated in Table 1.

Tables 2 and 3 give the laboratory ratings of the winter and summer fuels by the motor (ASTM), research, and L-3† methods as reported by the various cooperating companies at the same time that the road ratings were reported. The averages of the July and August "exchange-group" ratings on the fuels are included for comparison with the average of the ratings submitted by the "road group."

It was believed that since the road group made both road and laboratory ratings on samples from the same drum of fuel, their average laboratory ratings were more representative for comparison with the road ratings. Comparison of the road-group ratings by the motor method with those made some months later by the July exchange group indicated that there had been no significant change in the fuels during storage, however. Because only a limited number of ratings using the L-3 methods were submitted by the road group, it was felt desirable to use the exchange-group L-3 ratings for comparison with the road ratings for both summer and winter fuels.

Distillation characteristics, API gravities, vapor

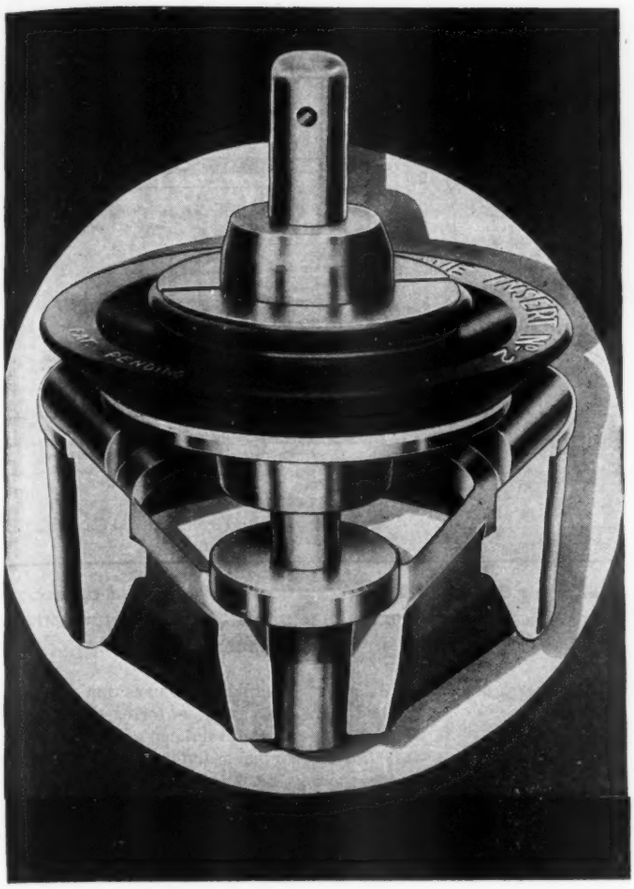
†The L-3 method involves the use of the same procedure as the motor (ASTM) method except for the following conditions: mixture 260 deg. F., spark 16 deg. at a compression ratio of 5.0:1, and a knock intensity equivalent to that produced by a 65-octane fuel at a compression ratio of 5.5:1.

TABLE 4—SUMMARY OF WINTER-FUEL INSPECTION DATA

Fuel—	Gravity (deg. API)			10 per cent evaporated			50 per cent evaporated			90 per cent evaporated			Reid vapor pressure (lb.)			Average cc. of lead per gallon
	Average	Maximum	Minimum	Average	Maximum	Minimum	Average	Maximum	Minimum	Average	Maximum	Minimum	Average	Maximum	Minimum	
WA-1	66.5	66 9	65 9	119	131	109	234	245	225	354	372	346	12 2	13 1	10 5	1 9
WB-1	67.5	67.6	67 3	111	117	106	200	207	195	316	322	310	12 1	14 2	11 0	0 0
WB-2	66.2	68 1	65.7	110	115	106	209	216	197	338	354	328	12 2	13 4	11 5	0 3
WB-3	68.1	68 4	67.8	108	115	103	201	205	196	320	347	307	12 8	13 4	12 1	2 0
WB-4	65.2	65.6	65.0	114	117	109	158	162	157	314	320	311	11 7	13 3	11 0	0 0
WB-5	59.1	59.5	58.7	125	140	119	187	202	183	308	315	304	10 4	11 1	8 8	0 0
WC-1	62 6	62 8	62 4	128	131	126	218	221	213	307	309	303	8 8	10 1	7 9	0 0
WC-2	61 6	61 8	61 4	137	140	132	230	232	228	322	325	323	8 4	8 9	8 0	0 6
WD-1	62.2	62 5	61 9	118	129	110	242	250	238	353	361	348	12 3	13 0	11 2	0 0
WD-2	61.5	61 7	61 2	124	131	113	246	252	239	355	361	351	11 3	11 6	10 6	0 3
WE-1	63.1	63.5	62 9	133	142	126	207	209	204	321	327	319	9 7	10 1	9 4	0 0
WE-2	62 8	63 0	62 5	134	140	122	208	215	203	323	334	315	9 9	10 3	9 4	0 3
WF-1	59.8	60 0	59.4	117	124	111	239	243	236	360	363	358	10 9	11 9	9 9	0 0
WF-2	59 6	60 0	59.1	121	131	99	254	257	249	351	360	347	9 2	10 9	9 8	0 2
WG-1	60 6	60 9	60 2	115	125	108	243	258	232	351	365	346	11.6	12 4	10 7	0 0
WH-1	65 4	65 7	65.1	128	133	125	192	196	188	271	277	269	9 6	11 4	9 0	0 0
WH-2	65.5	65 7	65 2	126	131	124	191	194	189	273	277	270	9 9	13.1	8 4	0 4
WI-1	61.9	61 9	61 9	122	124	120	243	245	241	346	349	345	11 4	11 5	11 2	0 6
WI-2	64 3	64 6	64 1	122	127	118	229	233	227	341	346	338	10 7	11 1	10 1	0 8
A-5	61.5			191			262			341			3 7			
C-10	67 5			165			193			240			6 2			

TABLE 5—SUMMARY OF SUMMER-FUEL INSPECTION DATA

Fuel—	Gravity (deg. API)			10 per cent evaporated			50 per cent evaporated			90 per cent evaporated			Reid vapor pressure (lb.)			Average cc. of lead per gallon
	Average	Maximum	Minimum	Average	Maximum	Minimum	Average	Maximum	Minimum	Average	Maximum	Minimum	Average	Maximum	Minimum	
SA-1	64 6	65 3	64 1	133	142	125	241	245	229	354	358	347	8 8	10 0	5.5	1.9
SB-1	61.7	61 9	61.4	143	149	138	242	244	239	340	344	336	9.4	9 8	8 2	0.0
SB-2	59 8	60 3	59.5	153	157	133	253	258	244	351	360	340	8 8	9 5	7 0	0.6
SB-3	61 6	62 0	61 4	140	152	130	236	242	224	335	342	326	8 2	9 0	7 7	2 8
SB-4	60 2	60 5	59 2	132	137	129	228	232	221	333	340	327	8 6	10 6	7 4	0 0
SB-5	54 4	54 6	54 2	147	153	141	206	211	201	328	336	324	8 1	8 7	7 3	0 0
SC-1	61.2	61 3	61 1	146	150	142	214	216	212	310	312	306	6.6	7 6	5 7	0 0
SC-2	59 5	59.7	59.4	140	145	137	247	248	246	344	350	341	6 7	7 2	6 5	0 6
SD-3	63 8	64.6	63 4	140	145	133	231	234	226	321	324	314	7.5	8 5	6 5	0 9
SE-1	62.8	63 2	62 6	138	140	132	209	210	207	325	330	319	9.0	9 6	8 6	0 0
SE-2	62.9	63.0	62.5	136	143	124	208	215	202	328	335	320	9.3	10 3	8 4	0 3
SF-1	58.2	58 9	57.6	150	157	144	239	243	232	340	347	335	6.6	7.0	5.9	0.0
SF-2	57.8	58.3	57.2	149	157	141	259	262	255	354	362	349	7 3	7.9	6 3	0.5
SH-1	59 2	59 5	59.1	153	157	147	230	232	225	316	320	304	6 0	6 7	5 4	0 0
SH-2	58 8	59 2	58.1	155	159	151	231	234	228	318	320	317	5 5	6 3	4 6	1 5
SI-1	59 6	59.9	59 2	150	156	146	257	265	253	352	354	350	6 8	7.4	6 0	0 7
SI-2	62.4	62 8	62.2	140	145	136	238	241	236	341	345	339	7.9	8 6	6 6	0 8
A-5	61.5			191			262			341			3 7			
C-10	67.5			165			193			240			6.2			



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pressures, and lead analyses for the test fuels are given in Tables 4 and 5.

The selection of cars for these tests was based on approximate relative sales volume. Originally there were at least two cars of each make chosen for the tests, and for the more popular cars more than this number were included. Although in the data as reported there have been some deviations from the original choice of cars, so that in some cases only one car of certain makes was tested, the number of individual cars of each make has been roughly proportional to relative sales volume in both the winter and summer tests. A list of the cars included in these tests and the number of each make is given in Table 6.

Due to the wide participation in these tests, it has been possible to include in these about three times as many different cars as were used in the 1934 tests at Uniontown.

Analysis of Data

The actual road tests were made at various points throughout the country, and the results submitted to the secretary of the CFR Motor Fuels Committee. These results have been compiled and reported to the Motor Fuels Section by a special "analyzing group" composed of men familiar with the details of the road-test procedure. The data as presented herein represent a condensation of the report made by that group, the personnel of which was as follows:

J. M. Campbell, General Motors Corp.
H. J. Gibson, Ethyl Gasoline Corp.
L. E. Hebl, Shell Petroleum Corp.
W. M. Holaday, Socony-Vacuum Oil Co., Inc.
O. D. Horne, Continental Oil Co.
B. A. Kulason, The Texas Co.
H. A. Mason, General Petroleum Corp.
J. R. Sabina, The Atlantic Refining Co.

Method of Obtaining the Average Road Rating

There are several alternative methods by means of which an average road rating for a given fuel may be computed from the individual road ratings submitted. The three methods considered are discussed below.

(a) Straight arithmetical average of the average rating in each make of car.

(b) Average weighted strictly according to relative sales volume.

(c) Average weighted according to number of individual car ratings.

In method (*a*)—"straight arithmetical average of the average car ratings for each make of car"—equal weight is given to each make of car. In following this procedure, a single best rating of a given fuel is first determined for each make of car. This may be an average of a number of independent ratings made in different cars of the same make, or it may be only a single rating where only one car of that make was included in the data. The weakness of this method is due: first, to the fact that results from cars of limited sales volume are given equal weight with cars of large sales volume; and, second, to the fact that a single car rating in one make of car is given the same weight as an average car rating based on several ratings in another make of car.

Method (*b*)—"weighting strictly according to sales volume"—begins with the same average ratings for individual makes of cars that are used in method (*a*). These averages for each make of car are multiplied by the fractional proportion of total sales for each car make, and the products are added to give the weighted average. This method has disadvantages where a certain fuel has been rated in only a limited number of cars.

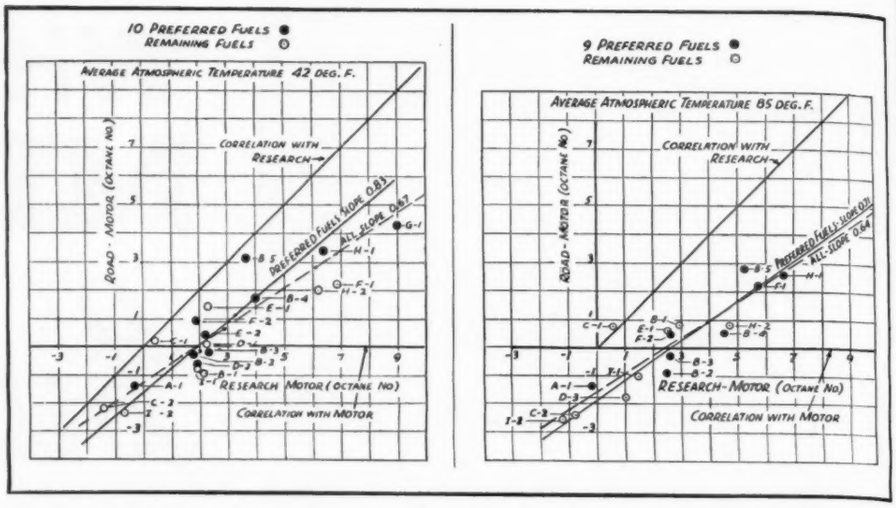

Fig. 2—Relation between road appreciation from the motor method and fuel sensitivity—winter fuels

Fig. 3—Relation between road appreciation from the motor method and fuel sensitivity—summer fuels

TABLE 6—1937 CARS USED IN ROAD TESTS

Name of car—	Number of Cars Fuels W	S
Ford 60	4	4
Ford 85	10	7
Chevrolet	12	12
Plymouth	6	5
Dodge	4	3
Pontiac 6	2	2
Pontiac 8	3	3
Oldsmobile 6	3	2
Oldsmobile 8	1	1
Buick 40	1	1
Buick 60	1	1
Buick 80	0	1
Packard 6	2	1
Packard 120	2	1
Terraplane	1	1
Hudson	1	1
Chrysler 6	2	2
Chrysler 8	2	1
Lafayette	1	1
Studebaker 6	2	2
Studebaker 8	1	1
De Soto	2	2
Cadillac	1	1
Total	64	56

TABLE 7—ROAD RATINGS OBTAINED BY VARIOUS WEIGHTING METHODS

Fuel WG-1

1 Car	2 No. of cars	3 Average car octane	4 Sum of individual ratings	5 Per cent sales volume	6 Product columns 3, 5
A	12	72 1	865 9	21 2	1,528 5
B	6	76 5	459 1	13 6	1,040 4
C,D	13	73 1	943 2	25 5	1,864 1
E,F	4	73 2	293 0	2 4	175 7
G	3	74 3	222 8	7 4	549 8
I,J	2	72 4	144 8	5 5	398 2
K,L	5	75 2	380 2	6 0	451 2
M,N	2	79 1	158 2	5 4	427 1
O	1	67 2	67 2	1 1	73 9
P,Q	4	72 9	295 2	2 9	211 4
V,R	1	69 7	69 7	2 7	188 2
S	1	83 9	83 9	2 1	176 2
T,U	3	76 2	227 3	2 1	160 0
Total	57	965 8	4,210 5	*97 9	7,244 7

Weighting according to car sales volume $\left\{\frac{\text{column 6}}{\text{column 5}}\right\}$ Mean octane 73 9.

Weighting according to car ratings reported $\left\{\frac{\text{column 4}}{\text{column 2}}\right\}$ Mean octane 73 9.

Equal weighting given to each make (arithmetic average) $\left\{\frac{\text{column 3}}{\text{column 1}}\right\}$ Mean octane 74.4.

*Car "H," representing 2 per cent of car sales, not included because no ratings were reported on this fuel in this car.

TABLE 8—AVERAGE CAR AND LABORATORY RATINGS—10 PREFERRED WINTER FUELS
(Octane Number)

Car—	WA-1	WB-2	WB-3	WB-4	WB-5	WD-2	WE-2	WF-2	WG-1	WH-1
A	67 9	68 1	77 2	74 4	74.5	69 0	70 8	69 8	72 1	78 6
B	67 6	70 2	77 5	75 5	74 6	68 2	69 2	70 5	76 5	78 9
C	67 0	68 2	75 8	72 6	73.7	69 2	70.5	69 2	71 7	80 4
D	68 7	68 6	79 1	72.3	73.7	68 8	70 8	68 8	74 4	80 3
E	69 0	70 8	77 0	73.7	73.5	69 8	74.0	71 5	73 7	78 8
F	66 0	69 0	74 0	....	75.0	69.0	71 0	72 0	72 7	79 0
G	68 5	69 4	79 2	77.0	75.7	70 8	72 5	71.7	75 4	78 7
H	67 8	67.2	....	....	75.0	68.0	69.1	69.1	....	....
I	65 8	65 8	79 1	73 3	71 0	65 8	69 8	....	68 3	78 8
J	68 3	69 0	77 5	74.5	73.0	71.0	71.9	71 7	74 2	77 9
K	69 3	68 8	78 6	76.7	73.0	71 0	71.7	72.5	77 0	78 0
L	66 0	66 0	77 7	75.2	74.1	64 5	72 0	71.7	74 6	78 7
M	67 6	72 3	78 8	....	75.1	70 8	71 3	71 7	80 6	80 6
N	68 2	68 6	78 4	75 4	74 9	71.3	72 0	72.3	77.6	79 5
O	66 8	66 7	75 0	69 7	71 0	67 8	73 0	70 4	67 2	75 0
P	65 4	66 8	79 2	75 7	72 6	68 5	72 3	70 5	71 1	78 9
Q	68 8	69 2	77 1	74.8	75 3	....	72.4	69 2	75 3	80 2
R	66 3	....	....	....	77 0	....	....	....	....	81 8
S	67 6	78 8	80 8	78 8	78 8	78 8	77 0	78 8	83 9	81 7
T	67 9	68*8	78 6	75 5	77 2	68 3	72 2	70 8	74 8	79 2
U	70 2	70 6	77 9	75 7	76 2	70 7	73 5	68 2	77 6	79 9
V	69 3	67 5	75 3	....	....	69.1	69 9	67.2	69.7	....
Average road rating*	67 8	68 8	77 6	74 3	74.4	69 1	71 2	70 4	73 9	79 0
Average motor	69 2	69 1	77 8	72 6	71 3	69 7	70 8	69 5	69 6	75 6
Average research	68 9	70 9	80 1	76 6	75 0	71 6	73 1	71 4	78 6	82 0
Average L-3	70 5	70 2	79 4	73 7	71 9	70 8	72.4	70 7	72 2	77 6

*Average road rating weighted in proportion to number of ratings in each make of car. Expressed in octane number.

Method (*c*)—"weighting according to the number of ratings submitted"—gives equal weight to each individual car rating. Since the number of cars of each make selected for these tests correspond, within reasonable limits, to the respective sales volume for each make of car, this method of averaging weights the data in approximate accord with relative sales volume.

A comparison of the results obtained by each of these three methods of computation using a sensitive type of fuel (WG-1) is shown in Table 7. In this example the average weighted strictly according to sales volume was equal to that based on weighing according to number of ratings reported. This agreement is the result of the similarity between the relative sales volume and the distribution of cars of each make used in these tests. The

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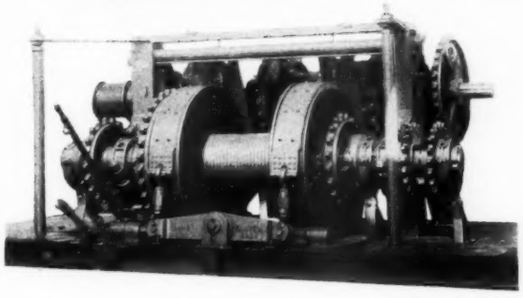

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arithmetical average obtained by method (*a*) differed from the other two averages by 0.5 of an octane number. In this case the straight arithmetical average was appreciably influenced upward by a comparatively few high ratings in cars representing a low percentage of the total sales volume.

In as much as some measure of weighting according to car sales volume was desired, method (*c*) was chosen as the most desirable method for use, since it provided the most direct method of using the data submitted without materially changing the average that would have been obtained by using method (*b*) even if that method could have been applied conveniently.

The average car and laboratory ratings for each fuel are tabulated in Tables 8 to 11. In these tables all ratings, both laboratory and road, are expressed in terms of the octane number of equivalent reference-fuel blends using the accepted motor (ASTM)-method calibration curve for reference fuels C-10 and A-5. The cars have been coded according to make, and the ratings entered for each make of car represent the average rating on each

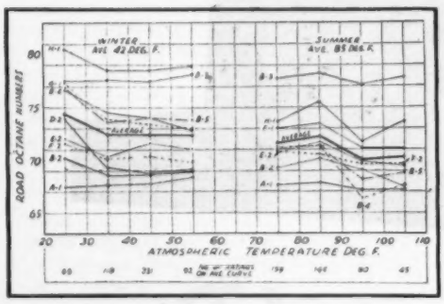

Fig. 4—Effect of atmospheric temperature on road ratings—preferred fuels

fuel, irrespective of whether the fuel was rated in one car or in 10 cars of that make. The average road ratings tabulated at the foot of each column in these tables are weighted in proportion to the number of ratings reported for each make of car in accordance with the procedure outlined under method (*c*) in the previous section. It should be recognized that these average road ratings which are recommended for correlation purposes are averages, and as such do not apply specifically to any one make of car. The tabulation of the ratings for each make of car clearly shows how wide the spread actually was among different makes of cars. Furthermore, the original data showed nearly the same spread in ratings among different cars of the same make. Even in one car there was a considerable spread in ratings when ratings were repeated from day to day. For these reasons, there is a considerable degree of uncertainty about the individual car ratings on all but the three low-priced cars of which there were from four to twelve cars of each make.

Correlation of 1937 Cars

The correlation between the laboratory methods and road ratings for the summer and winter fuels is shown in Fig. 1. The correlation when the fuels were classified according to fuel sensitivity, expressed as the difference between the research and motor (ASTM) methods, and road appreciation from the motor (ASTM) method is shown by Fig. 2 and 3. Table 12 shows the over-all fuel averages by the road and laboratory methods.

It will be noted in Table 12 that, when the ratings of all fuels are included, the motor (ASTM) method appears to give the best average correlation both in winter and summer. An examination of the correlation charts, particularly Fig. 2 and 3, shows, however, that while the correlation is reasonably good for fuels of moderate sensitivities, individual fuels which were either highly sensitive, or which ranged from low to negative sensitivities, deviated appreciably and in a consistent pattern from the average correlation line. The more sensitive fuels were rated above the motor rating on the road, and the less sensitive fuels were rated below the motor rating on the road; so that, with a fairly even distribution of fuels, the plus and minus deviations offset each other in such a way that the averages in Table 12 are in best agreement with the motor (ASTM) ratings. This does not mean, however, that the motor method gave satisfactory correlation between road and laboratory ratings. On

TABLE 9—AVERAGE CAR AND LABORATORY RATINGS—WINTER FUELS
(Octane Number)

Car—	WB-1	WC-1	WC-2	WD-1	WE-1	WF-1	WH-2	WI-1	WI-2
A	64.9	70.3	68.8	66.8	70.6	73.2	83.1	70.0	67.0
B	....	70.6	....	....	71.0	....	....	....	....
C	64.7	71.3	68.4	64.4	68.2	72.2	84.5	69.0	68.1
D	66.5	71.0	70.0	66.8	69.0	74.9	84.0	71.0	66.0
E	67.0	71.3	69.5	68.5	70.0	73.0	80.5	70.0	68.8
F	....	....	....	....	....	....	....	....	....
G	66.3	73.4	70.0	69.7	71.2	71.7	82.5	....	68.0
H	....	....	....	....	....	....	....	....	....
I	....	....	....	....	....	69.8	....	....	....
J	71.0	71.8	72.0	69.5	68.0	73.5	74.5	72.0	71.0
K	....	....	....	....	....	....	....	....	....
L	....	....	....	....	....	....	....	....	....
M	....	71.3	....	....	72.1	....	....	....	....
N	....	....	....	....	....	....	....	....	....
O	65.3	67.9	67.8	66.5	67.8	73.0	75.0	69.1	69.0
P	65.0	72.0	68.0	65.3	68.8	73.9	80.5	68.5	68.7
Q	65.0	....	....	....	69.0	....	....	....	....
R	....	69.1	....	....	67.6	....	....	....	....
S	....	73.0	....	....	74.3	....	....	....	....
T	....	71.3	....	....	68.5	....	....	....	....
U	....	....	....	....	....	....	....	....	....
V	....	....	....	....	....	....	....	....	....
Average road rating*	65.8	71.3	69.1	66.7	69.6	72.9	81.1	69.7	68.2
Average motor	66.6	71.1	71.3	66.6	68.2	70.7	69.8	70.4	70.5
Average research	68.6	71.5	69.9	68.8	70.5	77.6	86.0	72.3	69.8
Average L-3	67.3	71.8	72.7	69.2	69.4	73.9	82.0	73.2	71.4

*Average road rating weighted in proportion to number of ratings in each make of car. Expressed in octane number.

TABLE 10—AVERAGE CAR AND LABORATORY RATINGS—9 PREFERRED SUMMER FUELS
(Octane Number)

Car	SA-1	SB-2	SB-3	SB-4	SB-5	SE-2	SF-1	SF-2	SH-1
A	66.9	68.3	77.4	69.7	69.5	70.5	72.4	69.7	74.3
B	67.0	70.2	79.0	68.6	70.2	71.2	73.8	70.2	75.2
C	66.1	68.1	74.8	68.8	68.7	68.1	69.3	68.9	71.1
D	67.4	68.1	77.0	70.8	71.9	70.9	73.9	69.8	75.3
E	68.0	69.8	80.0	72.0	71.0	72.2	74.0	70.5	74.8
F	66.0	....	....	....	70.5	72.0	70.5	72.0	71.5
G	68.7	69.5	74.6	70.0	69.0	70.6	71.2	70.6	72.6
H	68.4	71.8	....	70.2	70.0	71.0	70.0	71.5	73.0
I	67.2	66.4	78.8	66.4	67.2	69.9	69.9	68.4	72.2
J	68.5	70.0	78.0	72.0	72.0	71.2	70.8	70.2	73.5
K	67.7	69.5	76.2	70.0	71.5	71.0	74.0	69.2	73.0
L	67.8	68.2	78.2	68.7	68.6	69.5	72.6	69.7	74.0
M	69.5	73.2	78.8	73.6	75.5	71.4	74.5	72.2	74.5
N	67.4	71.0	78.3	72.5	75.7	70.6	72.5	72.5	77.7
O	67.0	71.4	....	66.3	66.6	71.0	....	71.0	71.0
P	66.3	68.6	78.2	74.4	71.6	71.8	76.0	67.9	76.0
Q	68.7	70.9	79.0	68.8	70.2	....	69.0	71.5	73.5
R	67.6	67.6	76.9	72.3	71.3	68.6	75.1	71.3	75.2
S	72.3	72.3	79.8	75.1	78.2	75.1	79.2	77.9	76.6
T	69.6	71.9	80.1	72.4	73.2	73.1	74.3	72.8	74.2
U	70.6	69.9	....	....	77.4	74.7	77.1	74.9	78.0
V	65.2	....	....	....	....	....	....	....	....
W	68.0	70.0	76.0	....	....	70.0	70.0	70.0	....
Average road rating*	67.5	69.2	77.8	70.2	70.6	70.7	72.6	70.3	73.9
Average motor octane	68.9	70.1	78.1	69.7	67.8	70.7	70.4	69.8	71.3
Average research octane	68.7	72.6	80.7	74.2	73.0	73.3	76.1	72.4	77.9
Average L-3 octane	70.0	72.3	80.1	71.8	69.8	72.5	72.3	71.5	73.5

*Average road rating weighted in proportion to number of ratings in each make of car. Expressed in octane number.

TABLE 11—AVERAGE CAR AND LABORATORY RATINGS—SUMMER FUELS
(Octane Number)

Car	SB-1	SC-1	SC-2	SD-3	SE-1	SH-2	SI-1	SI-2
A	63.8	73.2	69.8	70.6	68.6	84.0	68.3	68.2
B	....	....	....	68.7	....	....	68.8	....
C	63.5	72.0	70.0	68.5	66.6	77.0	66.4	67.5
D	64.7	71.2	70.5	69.8	68.5	79.8	66.6	66.8
E	63.5	74.0	72.5	70.5	70.0	84.5	....	66.5
F	....	....	....	....	....	....	....	....
G	64.5	71.4	72.2	71.7	68.0	76.3	....	69.6
H	....	....	....	....	....	....	....	....
I	....	....	....	67.2	....	....	....	....
J	....	....	....	69.8	....	....	....	....
K	....	....	....	70.6	....	....	....	....
L	....	....	....	67.8	....	....	....	....
M	....	74.6	....	....	67.6	....	....	....
N	66.0	....	....	68.2	....	....	....	66.4
O	63.8	74.9	72.4	69.8	68.5	78.0	67.6	70.0
P	59.6	75.4	68.6	....	69.9	79.0	66.6	69.1
Q	64.5	73.0	....	....	....	....	....	....
R	....	73.1	....	....	68.6	....	....	....
S	....	74.5	....	....	74.5	....	....	....
T	....	73.8	....	70.0	72.0	....	....	....
U	66.5	....	....	69.8	....	....	....	68.5
V	....	....	....	....	....	....	....	....
W	....	....	....	69.0	....	....	....	....
Average road rating*	64.0	73.3	70.6	69.6	69.0	79.9	67.4	68.0
Average motor octane	63.2	72.6	73.0	71.4	68.4	79.6	68.4	70.6
Average research octane	66.1	73.2	72.2	72.4	70.9	84.3	69.8	69.4
Average L-3 octane	64.7	73.2	73.7	72.1	69.5	81.9	70.3	70.3

*Average road rating weighted in proportion to number of ratings in each make of car. Expressed by octane number.

TABLE 12—LABORATORY AND ROAD—GRAND AVERAGES
(Octane number)

	Winter fuels			Summer fuels		
	10. Preferred	9. Remain'g	All	9. Preferred	8. Remain'g	All
Road rating	72.6	70.6	71.7	71.4	70.3	70.9
Motor rating	71.5	70.6	71.1	70.8	70.9	70.8
Research rating	74.8	72.8	73.8	74.3	72.3	73.4
L-3 rating	72.9	72.3	72.6	72.6	72.0	72.3
Road minus motor	1.1	0	0.6	0.6	—0.6	0.1
Road minus research	—2.2	—2.2	—2.1	—2.9	—2.0	—2.5
Road minus L-3	—0.3	—1.7	—0.9	—1.2	—1.7	—1.4
Research minus motor	3.3	2.2	2.7	3.5	1.4	2.6

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Branch Stores in all Oil Fields

"OILWELL"

TABLE 13—ANALYSIS OF ROAD RATINGS MADE AT DIFFERENT ATMOSPHERIC TEMPERATURES

	1	2	3	4	5	6	7	8	9	10	11	12	13
	Winter						Summer						
Fuel—	Deg. F. average	Road	Motor	Research	Research-motor	Road-motor	Deg. F. average	Road	Motor	Research	Research-motor	Road-motor	Column 6 minus column 12
A-1	42	67.8	69.2	68.9	—0.3	—1.4	86	67.5	68.9	68.7	—0.2	—1.4	0.0
B-1	44	65.8	66.6	68.6	2.0	—0.8	84	64.0	63.2	66.1	2.9	0.8	—1.6
B-2	41	68.8	69.1	70.9	1.8	—0.3	87	69.2	70.1	72.6	2.5	—0.9	0.6
B-3	41	77.6	77.8	80.1	2.3	—0.2	87	77.8	78.1	80.7	2.6	—0.3	0.1
B-4	41	74.3	72.6	76.6	4.0	1.7	85	70.2	69.7	74.2	4.5	0.5	1.2
B-5	42	74.4	71.3	75.0	3.7	3.1	85	70.6	67.8	73.0	5.2	2.8	0.3
C-1	40	71.3	71.1	71.5	0.4	0.2	81	73.3	72.6	73.2	0.6	0.7	—0.5
C-2	47	69.1	71.3	69.9	—1.4	—2.2	82	70.6	73.0	72.2	—0.8	—2.4	0.2
D-1	46	66.7	66.6	68.8	2.2	0.1	..	....	....	....	...	...	...
D-2	44	69.1	69.7	71.6	1.9	—0.6	..	....	....	....	...	...	...
D-3	..	....	....	....	....	....	89	69.6	71.4	72.4	1.0	—1.8	...
E-1	39	69.6	68.2	70.5	2.3	1.4	80	69.0	68.4	70.9	2.5	0.6	0.8
E-2	44	71.2	70.8	73.0	2.2	0.4	86	70.7	70.7	73.3	2.6	0.0	0.4
F-1	45	72.9	70.7	77.6	6.9	2.2	86	72.6	70.4	76.1	5.7	2.2	0.0
F-2	43	70.4	69.5	71.4	1.9	0.9	86	70.3	69.8	72.4	2.6	0.5	0.4
G-1	42	73.9	69.6	78.6	9.0	4.3	..	....	....	....	...	...	...
H-1	41	79.0	75.6	82.0	6.4	3.4	85	73.9	71.3	77.9	6.6	2.6	0.8
H-2	43	81.7	79.8	86.0	6.2	1.3	83	79.9	79.6	84.3	4.7	0.3	1.0
I-1	40	69.7	70.4	72.3	1.9	—0.7	84	67.4	68.4	69.8	1.4	—1.0	0.3
I-2	40	68.2	70.5	69.8	—0.7	—2.3	86	68.0	70.6	69.4	—1.2	—2.6	0.3
Average	42	71.1	71.1	73.8	2.78	+0.6	85	70.9	70.8	73.4	2.5	+0.1	+0.4

YOU CAN BANK ON OUR GOOD NAME . . .

Banks everywhere know General American's reliability, and accept our negotiable warehouse receipts as good collateral. This reputation is upheld by the efficiency with which our five modern terminals handle every commodity. You can ship bulk liquids through General American terminals with complete confidence. You can depend on the reliability of America's largest public terminal system. And you can *bank* on General American service.

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TANK STORAGE TERMINALS

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the contrary, the data show beyond any reasonable doubt that certain types of fuels were rated too low by the motor method, and others were rated too high by this method. It can be concluded, therefore, that there is need for a laboratory test method which will give a more satisfactory evaluation of the relative knocking characteristics of all types of fuels than the present motor (ASTM) method.

Effect of Atmospheric Temperature on Road Ratings

To determine the effect of atmospheric temperature on road ratings, similar fuels were rated in the winter and summer in the same cars under approximately the same conditions. Laboratory ratings were obtained at the same time. The average atmospheric temperatures for both groups of fuels are shown in Table 13.

To obtain a direct measure of the effect of temperature, ratings were compared on the basis of the difference between road and motor values. This was necessary to eliminate changes in the octane level of the winter and summer fuels. The values are given in column 13 of Table 13, showing an average difference of 0.4 of an octane number between the winter and summer ratings. The discrepancy between +0.5 of an octane number obtained by subtracting the averages in columns 6 and 12, respectively, in Table 13 and +0.4 of an octane number is presumably because there were no summer fuels corresponding to WD-1, WD-2, and WG-1.

A subdivision of the data on the preferred fuels according to temperature at which they were obtained within each of the two major temperature groups is shown in Fig. 4.

In the winter subdivision, the average curve shows that there was a trend upward in the low-temperature bracket. This is believed to be largely due to accidental grouping of the higher-rating cars in this bracket, which unduly influenced the average obtained on relatively few cars. Where sufficient information was available to obtain representative averages, no trend in apparent. Little significance can, therefore, be attached to the increase in octane number at the lowest temperatures.

In the summer subdivision, car distribution again played a preponderant part in the average ratings. As with the winter fuels the high-rating cars were grouped in the low end of the temperature range, leaving the lower-rating cars at the high end, producing an apparent downward trend with an increase in temperature. Where a sufficient number of ratings were obtained on the same make of car in the various temperature brackets, no definite trend was discernible.

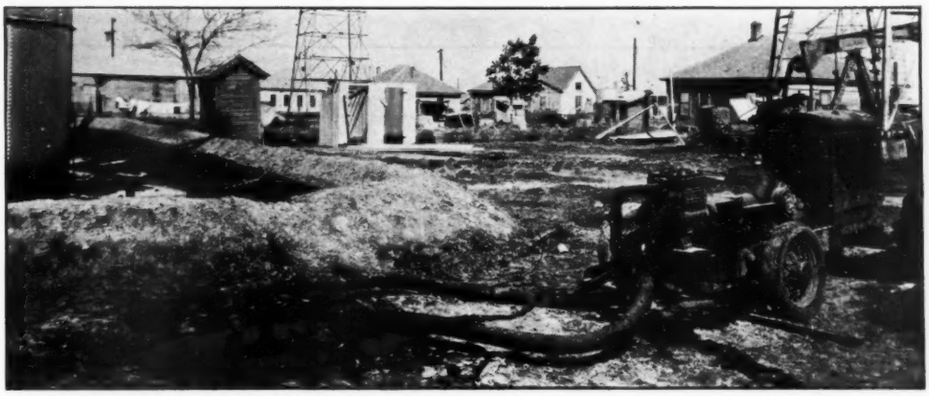
Bibliography

[1] *Proc. API* 13 [III] 141 (1932).
[2] *J. Soc. Automotive Eng., 32,* 105 (1933).
[3] *Proc. API* 15 [III] 33 (1934).
[4] *J. Soc. Automotive Eng., 36,* 165 (1935).

OPERATING IDEAS

Anchoring Servicing Truck

An oil company operating in the Olympic pool near Wewoka, Okla., has installed 6- by 6-foot concrete slabs for the back wheels of its trucks to rest on while servicing wells. A bumper made from 6-inch pipe was sunk in the concrete as shown in the accompanying photograph, while an I-bolt set concrete is used as an anchor to hold the truck stationary.

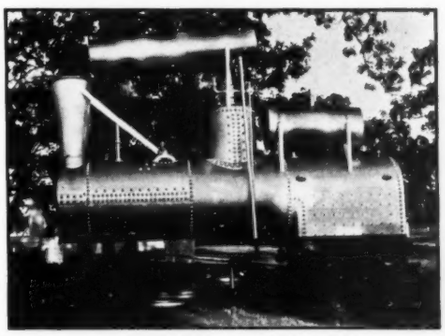


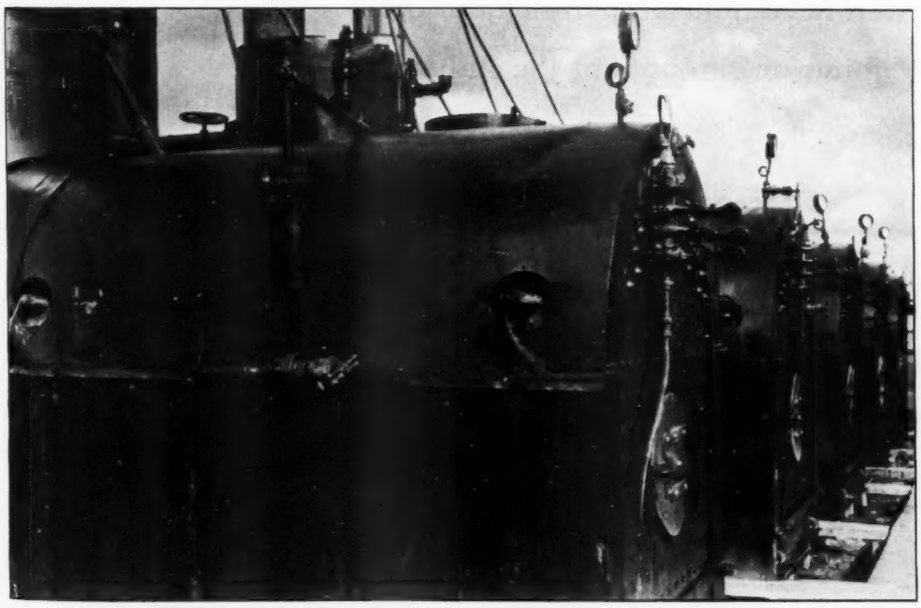
Portable Gasoline Pump Used to Empty Lease Tanks

In the townsite area of the Talco field, where small leases do not justify permanent pipe line pumps on the gathering system, portable gasoline pumps are moved from one lease battery to another to move the oil when required. The one shown here is connected to a battery and discharging to one of the gathering systems in the field. The unit is mounted on a rubber tire chassis and is shaft driven from a gasoline motor, using a reciprocating pump.

Portable Treating Boiler

On various leases where steam facilities are not ordinarily available, one oil company operating in the Van pool of Texas is using a portable boiler of the type shown here for treating tank bottoms. The boiler is mounted on a rubber-tired trailer and is pulled from lease to lease by truck. To remove any strain on the stack while it is in transit, the upper portion is hinged so that it can be lowered on its side with upright braces being welded to the boiler dome to hold the stack.





Signal Valves Installed on Battery of Drilling Boilers

A major oil company operating several strings of rotary drilling tools on the Gulf Coast of Louisiana has installed on each of its boilers a signal valve which operates from the second gauge cock. The valves make a loud whistling sound when the water level falls below this point, thus their installation serves to aid in keeping sufficient water in the boilers at all times.

Open-Air Pipe Shop

At a California gasoline company's plant in the Ten Section field pipe-fitting work is done at a bench located outside. A roof shades workers from the mid-day sun, and the absence of walls makes handling of pipe easier.

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QUESTIONS ON TECHNOLOGY

By Charles K. Francis, Ph.D., Technical Editor

Condensation in Neck of Engler Flask and Temperature Drop

It has been noticed when making Engler distillations that during the operation there is a check in the vapors passing over while the vapors occurred in the neck of the flask in a swirling motion until they reach the cork when normal distillation continues. At the same time there is a temperature drop, although distillation rate continues. Is this due to lack of certain hydrocarbons or to change in heat capacity? The drop in most straight-run gasoline is about 127° C. to 140° C.—S. P.

The National Bureau of Standards has kindly discussed this inquiry and furnishes this comment:

Our A.P.I. Research Project 6 does not carry out Engler distillations, so we have been making inquiries as to whether the phenomenon observed by your correspondent in regard to such distillations is a commonly observed one. Apparently it is, and we have received the following information from R. C. Hardy, of this bureau: "The phenomenon described has been observed in our routine testing of motor fuels. It appears to be a not uncommon occurrence. However, we have observed a temporary reduction in the distillation rate accompanying the drop in the thermometer reading, but adjustment of the heat input to the flask is not necessary as the distillation rate is restored to normal when the thermometer resumes its normal use. Attempts to counteract this interruption in the distillation by a temporary increase in the heat input have been unsuccessful and lead to an abnormally high rate of distillation when the phenomenon has passed."

In the case of "straightrun" gasoline, I do not see how the drop can be entirely attributed to a lack of hydrocarbons boiling at the given temperature because the distillation flask only has a fractionating efficiency of the order of one theoretical plate and would bring about very little separation of the many hydrocarbons present in the material (see, for example, Figure 2, The Oil and Gas Journal, 33, No. 52, 61, 1935; Figure 2, J. Research Natl. Bur. Standards 15, 211, 1935; and Figures 1, 2 and 3, Ind. Eng. Chem. 28, 201, 1936). We feel also that the phenomenon would less likely be due to a change in heat capacity or heat content of the hydrocarbons distilling at the time of the temperature drop, because the heat capacities and heat contents of the various hydrocarbons, in "straightrun" material, as a rough first approximation, follow simple additive relations.

In the case of gasolines other than "straight-run" one can say little without knowing something about the actual composition, or at least the volume-temperature curve obtained with an efficient fractionating column.

Kauri-Butanol Value of 40 for Special Petroleum Naphthas

We have a specification which mentions a "40 kauri value." Will you please explain this?—E. E. M.

A standard solution of kauri gum is prepared with butyl alcohol. The quantity of naphtha which may be added to the gum solution under specified conditions is known as the kauri-butanol value of the naphtha. Some purchasers require a 40 value. A reference to the 40 kauri-butanol value of 40 is contained in the article by E. H. McArdle, which is quoted.

The Philadelphia Paint & Varnish Production Club has developed a reliable method of standardizing solutions of No. 1 kauri resin in normal butyl alcohol by using a "primary reference mineral spirit" whose kauri-butanol value is arbitrarily set at 40. Solutions containing approximately 20 per cent by weight of unrun kauri resin are brought to standard strength by changing resin concentration until 20 grams of solution become just cloudy when titrated at 25° C. with 40 cc. of the reference spirit.

Standardization at the low value of 40 proves adequate in testing the lower solvency naphthas, such as V. M. & P. and varnish spirits, but serious inaccuracies may arise when evaluating highly aromatic petroleum fractions whose solvencies approach those of coal-tar solvents. Thus a second standard point, in the upper range of kauri-butanol values, becomes essential to the correct testing of high solvency naphthas. Such a point is conveniently taken as the kauri-butanol value of C. P. benzene, and arbitrarily called 100.

Currently, the Philadelphia Club is showing that industrially pure toluene, the 2° C. lacquer grade, is preferable to benzene, since the kauri value of toluene is more precisely determined by a large variety of operators. Importance of correct interpretation of kauri-butanol values has been exemplified in the recent past by differences of as much as 18 points in published "kauris" of high solvency naphthas. These have occurred mainly through lack of employment of reference mineral spirits and subsequent alignment against benzene or toluene.

References: J. R. Stewart, Cir. 378, American Paint and Varnish Manufacturers Association. E. H. McArdle, Chem. Met., 44, 598, 1937. Paint Oil and Chemical Review, No. 26, 1936. Baldeschwisler, Troeller and Morgan, Ind. Eng. Chem., 27, 374, 1935.

CHEMICALS FOR THE PETROLEUM INDUSTRY

Diethylene Glycol

Use—Antifreeze solutions, liquid seal for tanks, solvents for oils, moistening agent, displacing agent gasoline extraction.

Form—Hygroscopic colorless liquid.

Odor—Very little, trace organic.

Formula—$(CH_2OH.CH_2)_2O$.

Specific gravity—1.132.

Boiling point—482° F.

Solubility—Soluble, all proportions, in water, alcohol and ether

LIMITATIONS

Purity min., per cent	95
Specific gravity	1.117 to 1.120
Boiling range	446° to 518° F.

Carbon Deposits in Auto Engines Related to Type of Lube Oil

We should like to have information showing the amount of carbon deposited in an automobile engine by the several types of lubricating oil, such as Pennsylvania, Gulf Coast and Mid-Continent lubricating oils.—M. A.

It has been established by several investigators that engine deposits are traceable to the lubricating oil. Engine condition, quantity of oil passing into the combustion area and temperature are the factors that influence deposition of carbon in the internal combustion engine. The contribution by Gruse and Livingstone contains an explanation of carbon deposition, both as to conditions of operation and the nature of the deposits. The types of lubricating oils, about which inquiry is made, are given in the table.

DEPOSITS FROM LUBRICATING OILS

Kind of oil—	Vis. Say. @ 210° F.	Carbon residue (%)	Deposit gms./liter of oil
Normal Penn.	62	0.62	7.9
Sol. ref'd. Penn.	62.6	0.48	7.3
Special ref'd. Penn.	65.8	0.17	6.2
Sol. ref'd. Naphthenic	68.4	0.18	4.3
Sol. ref'd. Mid-Cont.	63.5	0.16	7.0

The newer methods for refining lubricating oils appear to have upset the idea that carbon-residue is directly related to coke or carbon deposits. In the table it is plainly shown that the quantity of carbon formed as a deposit, is not to be predicted from the carbon-residue percentage.

Reference: Gruse and Livingstone, Symposium on Lubricants, A.S.T.M. Preprint, 1937.

Vanadium May Be Present in Ash and Soot From Petroleum

What crude oils contain relatively high percentages of vanadium?—L. E. V.

Vanadium is extracted from certain complex ores found in Colorado, Arizona and Utah, also in Mexico and Peru. Any oil found in these areas usually contains vanadium. Some of the oils of Pennsylvania contain an appreciable quantity. Gurwitsch-Moore mentions several sources; it is stated that the ash of a Nevada bituman contained 30 per cent vanadium oxide.

The quotation following is from Richard J. Lund's special section in the Bureau of Mines Yearbook:

"According to verbal advice from C. Rees, vice president, Vanadium Corp. of America, some 50,000 pounds of vanadium oxide are recovered annually from boiler and stack soot of ships burning Venezuela and Mexican oil for fuel. Until recently, much of this was recovered and marketed by various contractors on the East Coast of the United States who cleaned the boilers of these ships during their calls here, but apparently much of this business is now being done in Europe. The soot runs anywhere from 2 to 34 per cent vanadium oxide, the richer recoveries being made by tankers operating in and near Maracaibo Lake, Venezuela. Soot from Mexican oil averages around 6 per cent vanadium oxide."

The market price of vanadium oxide is 27½ cents a pound.

References: Gurwitsch-Moore, Petroleum Technology, page 289. U. S. Bureau of Mines Minerals Yearbook 1937, Chapter Molybdenum, Tungsten, and Vanadium, by Richard J. Lund, page 663.

PROBLEMS FROM READERS

Edited by L. G. E. Bignell

Electric Resistivity Prospecting Methods

I have seen the term used, especially in connection with the Michigan fields, that they were making an "electrical resistivity survey." I would appreciate information from you as to whether or not this is a form of seismograph work, magnetometer or torsion balance, or something entirely different.—M. L. F.

The electrical resistivity method, or electric potential method as it is sometimes called, is in no way connected with any of the other geophysical methods listed by you.

Electrical prospecting is rather complicated, both in theory and practice, and in attempting to describe it in a simple manner it is necessary to idealize and generalize the description. For its operation, electrical prospecting mainly depends on the fact that different strata of the earth's surface conduct an electric current much more readily than others. If an electric current flows through a block of ground within which body a formation carrying gas, oil or water is present the current will find a different resistance to its passage through those strata than through barren rock.

One type of apparatus used for electrical surveys is known as the Megger Ground Tester and is manufactured by Evershed and Vignoles, London, England. The essential elements of this instrument are a hand-cranked direct-current generator, a double commutator system and an ohmmeter. There are four outside electrodes, two current electrodes and two potential electrodes. If leads are run from the electric terminals to two parts of any conductor and the generator crank turned, an alternating current is sent through the conductor. This current alternates at 50 cycles and the potential difference set up on open circuit is 50 volts. If two other leads are run from the potential terminals and are connected to different parts of the same conducting body to which the current leads are attached, an alternating potential difference will be led off.

The double commutator system is so arranged that the direct current generated is led through the current coil of the ohmmeter and is then alternated by one-half of the commutator. A part of this is picked up by the potential electrodes, taken through the other half of the commutator where it is rectified, and then passes through the potential coil of the ohmmeter as direct current. As a result, the ohmmeter reads directly in ohms the result

$$R = \frac{E}{I}$$

where R is the resistance in ohms of the block between the two equipotential surfaces through the points of attachment of the two potential electrodes, E the potential difference between these points and I the total current flowing through the conductor.

The instrument thus lends itself to the determination of the specific resistivity of the semi-infinite homogeneously conducting medium by the method described by F. Wenner in U. S. Bulletin 258 (1916) entitled, "A Method of Measuring Earth Resistivity." You are referred to this bulletin for further details of this method and its application.

So far as we can learn the electrical resistivity method of prospecting for gas and oil is no longer used in Michigan but it is understood it was tried by several major companies five or six years ago to determine thickness of glacial drift as well as to prospect formations immediately under the drift. It is understood its use is restricted to depths of about 600 feet.

Another publication by the U. S. Bureau of Mines on this subject was prepared by I. Roman in 1931 and is entitled "How to Compute Tables for Determining Electrical Resistivity of Underlying Beds and Their Application to Geophysical Problems." This is known as Technical Paper 502.

There are numerous other papers on this subject, some of them highly technical, but if it is your desire to use this method in prospecting for gas or oil it is our suggestion you consult with a geophysicist and secure his advise as to its application to your particular problem because the subject is entirely too complicated for a layman to handle unassisted.

Equipment For Small Wells

We have several small producers in Cuba, too small to justify pumping equipment, and the bailing machine is too slow and to much trouble to move about. These wells are from 700 to 1,200 feet deep and make from 2 to 5 bbls. of very light distillate per day. Do you think we could produce this fluid economically by air or gas lift? If so how should such an installation be made? If pumps are used what size tubing should be used, what kind of strainers and valves and how close to the bottom of the wells should the working barrel be set?—W. T. C.

While we cannot find anything specific about production in Cuba the above facts are taken as stated and upon that basis it is our suggestion you install small individual pumping units at each well and use either electric motor or small combustion engine to power same. These small pumping units are made by several manufacturers in this country and they are well suited for this kind of production for they can be so equipped as to start and stop automatically if desired or the pumper can make the rounds and start each unit and then shut it down when the well has pumped off.

For a small well of this kind with volatile oil it would be best to use small diameter tubing and perhaps pump the wells every two or three days when an appreciable volume of oil has been accumulated in the hole. When the well is not being produced it should be shut in so that evaporation will be reduced to a minimum.

Gas or air lift would hardly be suitable for such wells because this light oil would probably volatilize and be hard to handle. With the pump the fluid should be produced in a satisfactory manner but a string of 1½-inch tubing with same size working barrel should be used. For the 800-foot string it will require about 2 bbls. of oil to fill it so if there is at least that much oil in the hole the pumps can operate but it will require more than this volume of fluid to permit the wells to actually produce.

For this kind of oil the ordinary working barrel should be suitable unless it contains appreciable percentage of sulfur.

The wells might also be pumped with a central power if they are so located as to permit balancing the loads but without more detailed information it is impossible for us to make any recommendations on this point.

Sulphur Statistics

Will you kindly inform me just what per cent of the sulphur of the world is produced in the United States, what sections and companies produce it and what the market price of sulphur has been since 1912, if your figures go back that far? What effect will synthetic sulphur have upon the production of sulfur in this country, and what the market trend is at the moment on sulphur.—R. V. C.

In Minerals Yearbook, 1937, there is a chapter devoted to sulphur and pyrites and this gives the statistics for 1936 and several years prior to that date.

The estimated production of sulphur for 1936 was 2,700,000 long tons, of which the United States produced 2,016,338 long tons, or 74.5 per cent. The countries outside of the United States producing sulphur are Chile, Italy, Japan and Spain.

The average quoted price for sulphur as reported in the trade journals was unchanged at $18 a ton, f.o.b. mines throughout 1936. Spot prices for carlots were quoted at $21 per ton. The price quoted recently is still $18 f.o.b. mines.

The companies producing sulphur in this country are listed as Sulphur Diggers, Inc., and Sulphur Products Co., Inyo County, California; Freeport Sulphur Co. and Jefferson Lake Oil Co., Inc., Louisiana; Duval Texas Sulphur Co., Freeport Sulphur Co., Texas Gulf Sulphur Co., Texas; and Utah Sulphur Industries, Beaver, Beaver County, Utah.

We know of no synthetic sulphur. We doubt if sulphur, which is an element, is produced synthetically. Sulphuric acid is made from free sulphur and sulphide ores. Treatment of copper and zinc ores yields large quantities of sulphur, which are recovered at the mills as a pyrites concentrate or at the smelters as sulphuric acid. In smelting copper and zinc concentrates the sulphur is driven off as sulphur dioxide gas, which is used at many smelters in the manufacture of sulphuric acid. About 150,000 tons of sulphur were recovered as sulphuric acid annually from this source during the five years ending in 1935. Such sulphur is not included in the sulphur-production figures for the United States.

Another source of a small quantity of by-product sulphur is purification of manufactured fuel gas. In 1934, 1,500,000 long tons of sulphur were produced from this source. This sulphur was not included in the sulphur-production records given above.

Domestic consumption of sulphur was greater in 1936 than in any year since 1929. This is accounted for by the diversified application of sulphur in industry and with greater general activity in 1936 the use of sulphur increased proportionately. The apparent domestic consumption for 1936 was 1,402,443 long tons.

For other details concerning sulphur and pyrites you are referred to Minerals Yearbook, 1937, published by U. S. Department of Interior, Bureau of Mines, and available from the Government Printing Office, Washington, D. C., for $2.25 per copy bound in cloth.

FIELD OPERATIONS

Summarizing the Week's Developments

A 7,421-bbl. well was completed in section 32-17-10w, Habiger pool, Ellsworth County, Kansas, offsetting a 7,604-bbl. well completed a few weeks ago. New producing areas were opened in section 4-22-8w, Rice County, and section 12-19-1w, McPherson County. Another large producer from the first break in Mississippi lime was recorded in section 8-24-17e, in the Neosho Falls area, Woodson County, where 15 rigs were active.

OKLAHOMA

A wildcat in section 22-15-1e, Logan County, was preparing to test a showing of oil in Wilcox sand. The Dora pool, southern Seminole County, was extended one-half mile southeast in section 33-7-6. A wildcat was completed as a small pool opener in section 4-5-6, Seminole County.

ILLINOIS

Latest report on the Clay City townsite wildcat in Illinois, which looked like a pool opener a week ago, showed the well swabbing salt water with a little oil. Nine oil wells and eight dry holes comprised the week's record in the Central Basin area.

TEXAS

The Denver pool, Yoakum County, West Texas, was extended a mile easterly by a 561-bbl. well. Four completions in the deep 4,000-foot sand in the Kemp City field in Wichita County, produced 3,076 bbls. initially. Thirty-eight wells are drilling to the deep sand. Wildcats in Navarro and in Cherokee County were abandoned as dry. In Southwest Texas, a wildcat 12 miles south of the town of Goliad gives promise of opening a new productive area. A new pay was uncovered in the Heyser field in Victoria and Calhoun counties, yielding 10 bbls. per hour at 6,030-37 feet. It is the fifth producing sand in the field. The Luby field was extended a mile by a distillate producer. On the east and west sides of the Benavides field in Duval County, outposts are showing oil. Two wildcats along the Gulf of Mexico shoreline, one in Texas, the other in Louisiana show oil on drill stem tests.

TEX-LA-ARK

Plans for the reduction of pipe line runs from the Rodessa pool in Miller County, Arkansas, are being considered in an effort to reduce drainage from the Louisiana side of the field. Miller County wells are permitted a 300-bbl. production while only 100 bbls. per well is permitted on the Louisiana side. The discovery well in section 8-16s-22w, in the Buckner pool, Columbia County, Arkansas, flowed 286 bbls. in six and one-half hours through tubing after an acid treatment.

CALIFORNIA

The attempt to halt the development of the Long Beach extension of the Wilmington, California, field by court action failed, and at least 200 wells will be completed within the next six months in the Long Beach area. A new field in Kern County, northwest of the Ten Section field, is assured, the discovery well having flowed 2,112 bbls. of 36.9-gravity oil in a 24-hour test. Total depth of the well is 8,175 feet.

ROCKY MOUNTAIN FIELDS

A gas well in Daggett County, northeastern Utah, good for 21,000,000 feet per day, was the feature well in the Rocky Mountain area.

Completions in All Fields

(Week Ending November 27, 1937)

	Oil	Gas	Dry	Total	1937 total comp. to date	1936 total comp. to date
N. Y., Pa., W. Va.	75	16	5	96	4,171	3,690
Ohio	8	16	13	37	1,134	779
Indiana	0	0	0	0	107	179
Kentucky	1	0	5	6	649	296
Illinois	9	0	8	17	274	35
Michigan	12	3	1	16	736	750
Kansas	25	4	6	35	2,405	1,577
Oklahoma	37	1	18	56	2,430	2,398
Texas:						
North Central Texas	22	0	15	37	2,511	2,516
West Texas	43	0	5	48	2,446	1,480
Texas Panhandle	16	4	0	20	741	607
East Texas	30	0	0	30	2,176	2,343
East Central Texas	10	0	0	10	658	365
East Texas Border	3	0	0	3	306	162
Gulf Coast Texas	16	1	6	23	1,422	1,156
Southwest Texas	45	3	8	56	2,941	2,688
Total Texas	185	8	34	227	13,201	11,317
North Louisiana	6	1	4	11	601	623
Gulf Coast Louisiana	7	1	3	11	416	376
Total Louisiana	13	2	7	22	1,017	999
Arkansas	4	0	3	7	163	81
Montana	0	1	1	2	211	233
Wyoming	1	1	1	3	100	118
Colorado	0	0	0	0	18	27
New Mexico	6	0	2	8	641	527
Utah	0	0	1	1	4	6
California	29	0	4	33	1,371	1,057
Total United States	405	52	109	566	28,632	24,069
Total previous week	454	62	81	597		
Difference	49	10	28	31		

Outstanding Fields—Highlights

(Week Ending November 27, 1937)

FIELD—	Rigs up	Wells drlg.	Weekly oil completions	Initial prod.	Total No. oil wells	Daily av. prod.
TEXAS						
Hastings	9	16	6	3,230	399	19,816
McCampbell	2	11	2	150	82	4,117
Saxet	6	15	3	206	579	42,180
Benavides	5	9	3	406	106	5,216
East Texas	42	110	30	1,400	24,010	416,050
Talco	2	25	4	1,255	555	32,200
Ector County	16	59	13	12,863	740	28,510
Winkler County	7	21	6	4,714	1,506	42,115
OKLAHOMA						
Fitts	3	14	3	861	942	89,230
Billings	1	4	0	0	57	7,400
KANSAS						
Ellis County	6	29	1	311	252	10,775
Barton County	14	41	2	3,249	279	12,120
Russell County	13	50	5	4,141	948	30,890
Rice County	10	34	3	1,137	1,029	35,310
NEW MEXICO						
Lea County	14	110	6	491	1,540	96,750
LA-ARK-TEX						
Rodessa, Ark.	2	13	3	2,350	45	12,235
Rodessa, La.	3	12	2	860	423	44,144
Rodessa, Tex.	1	16	3	2,750	374	21,731
Lisbon, La.	2	13	1	2,040	140	7,380
Jennings, La.	1	14	1	527	80	13,529
MICHIGAN						
Buckeye	8	58	7	3,017	305	25,971
CALIFORNIA						
Wilmington	8	27	8	2,615	318	62,160
ILLINOIS						
Central Illinois	37	108	9	3,948	207	20,291

DEVELOP

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The Oil and Gas Journal's

FOREIGN LANGUAGE ISSUE

December 30th, 1937

Export Sales of Oil Equipment Are UP 81%!

Are You Getting Your Share?

Exports of oil equipment from the United States the first half of 1937 totalled $16,453,988—an 81% increase over the total for the same period last year!

Of this total, approximately half, or $8,300,973, was for drilling equipment, while $8,153,015 was for other field, pipe line, refining and marketing equipment. Among the countries which showed large increases in their purchases were:

DRILLING EQUIPMENT		OTHER OIL EQUIPMENT	
Venezuela	$1,866,720	Soviet Russia	$1,959,680
Netherland India	1,565,358	Asia	1,079,761
Roumania	1,067,484	Italy	718,228
Trinidad, Tobago	811,678	Netherland, West Indies	670,224
Canada	667,159	Trinidad, Tobago	569,539
Mexico	395,157	Mexico	477,850
Colombia	281,921		

The foreign market for oil equipment is constantly increasing. The percentage of the world's oil supply which is produced abroad is steadily advancing. At this time foreign fields are producing approximately 40% of the supply, but they possess 50% of the known reserves. American oil equipment manufacturers have a pronounced advantage in world markets over foreign manufacturers, as foreign countries have long looked to this country for leadership in oil equipment development and manufacture. Aggressive selling effort in export markets by American manufacturers will maintain and increase this advantage.

USE OF FOREIGN LANGUAGES INCREASINGLY IMPORTANT

Nationalization Programs in many foreign countries are increasing the need of reaching these men through their own language. In some countries as high as 80% of the payroll must, by government decree, be natives of these countries, and all orders and company correspondence must be in the language of that country including tenders made by American manufacturers in the sale of equipment. The tendency along these lines will be more and more pronounced as time goes on.

Five years ago The Oil and Gas Journal recognized this trend and to meet this development inaugurated its first foreign language section. Each year this service has been further developed and each year more and more American manufacturers have taken this opportunity to get their message across in the language used in these countries.

The Foreign language annual issue of The Oil and Gas Journal not only contains important feature articles printed in three languages, summarizing world oil conditions—but, in its Foreign-Language Section, publishes all advertisements also, in English, Spanish and French. The issue has become, in effect a foreign-language catalog of the foremost lines of American oil equipment, and as such it is preserved for reference for an entire year by foreign-language-speaking buyers, who receive no other publication of its kind during the year.

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Foreign circulation of this issue is comprehensive. The Journal maintains accurate lists of all key oil men in foreign countries, and those requesting the foreign language section are sent a copy of this special issue free of charge. In this way more than 2,000 copies of the issue are mailed abroad. Rates are the Journal's regular rates plus a foreign-language-translation charge of $50 per page, $25 per half-page, $33.34 per two-thirds page, and $16.67 per third-page.

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East and East Central Texas

By MITCHELL TUCKER

SUNDAY SHUTDOWN AFFECTS FIELD WORK IN EAST TEXAS

DALLAS, Tex., Nov. 29.—New locations and completions in the East Texas field fell off for the third consecutive week, regardless of the fact that new permits are being issued for inside drilling at a rather constant rate. The effect of Sunday shut downs is thought to be largely responsible for the present decline in activity. For the past seven days, 31 new locations were made in the field, compared with 45 for the previous week and 47 for the preceding week. Only 30 completions were recorded last week, compared with 48 and 57 for the two previous weeks, respectively.

Considerable speculation continues to exist regarding whether or not an extension will be made in the Sunday shut downs beyond the present order for four weeks only. Members of the Texas Railroad Commission have stated that no continuation of the weekly East Texas shut downs is contemplated after expiration of the present order, but that any extension of the rule would depend upon recommendations of engineers after all data obtained from weekly pressure tests have been assembled and studied.

Total producers in the field passed the 24,000 mark last week, following completion of Tide Water Associated Oil Co. No. 10-B Nettleton, in the Kilgore area.

Opelika Test

The second well in the deep Opelika field near Athens, Henderson County, Tide Water-Seaboard-Humble No. 2-C McElreath and Suggett, W. P. Wyche Survey, has been plugged back from 9,320 feet to 8,890 feet, after testing all possible producing zones through this interval. At the present depth of 8,890 feet, with casing perforated from 8,758-8,890 feet, the well tested 63 bbls. of 55-gravity distillate in 13 hours, tubing pressure 950 pounds, and gas production gauging about 10,000,000 feet per day. After making full production tests, operators killed production from this level and are preparing to plug back to the Upper Glen Rose, from which the Opelika discovery well is now making small quantities of crude oil.

Gregg County Prospect

Humble and Gulf No. 1 E. Robertson, M. Mann Survey, deep Trinity test 2½ miles southwest of Longview, is reported to have topped the Travis Peak at about 7,400 feet. Operators are now fishing for drill stem which was lost soon after penetrating this zone.

Limestone County

Pure Oil Co. No. 16 T. Kendrick, P. Varella Survey, deep exploratory test in the old Mexia field of southern Limestone County, continues to fish for stuck drill stem at a total depth of 8,847 feet.

Stanolind Oil & Gas Co. No. 1 T. Norris, in the Thresher Survey, 5 miles north of Kosse, holds attention as it drills below 6,560 feet in the Travis Peak. Original contract depth of this test was 6,500 feet, but operators have elected to drill deeper.

Hopkins County—Sulphur Bluff

Paluxy sand operators in northeastern Texas are closely watching Abbott and Ruthland No. 1 Peyton, J. Burkham Survey, a wildcat 2½ miles north of Sulphur Bluff, as it drills ahead in the Georgetown lime at 4,080 feet and continues to check high on all important markers. The Paluxy sand is expected to be topped soon.

Abandonments

In Cherokee County, J. G. Mayo abandoned No. 1 Holmes, S. F. L. Noble Survey, wildcat test 3½ miles southeast of Lone Star, after finding only water in sand from 4,157-77 feet.

Nowlin and others No. 1 Easterling, J. Mayor Survey, 2 miles south of Chatfield in Navarro County, was abandoned as dry, total depth 2,669 feet.

EAST TEXAS COMPLETIONS

Gregg County

Atlantic Refining Co. No. 8 J. J. Fuller, 3,689-3,717 feet, flowed 48 bbls. per hour; No. 23 Porter, 46 bbls. per hour. F. H. E. Oil Co. No. 23 B. C. Christian, 3,620-50 feet, 63 bbls. per hour. Gulf Oil Corp. No. 16 A. V. Bacle, 3,593-3,608 feet, 40 bbls. per hour. L. G. & S. Oil Co. No. 3-C D. W. McQueen, 3,683-3,690 feet, 20 bbls. per hour. Magnolia Petroleum Co. No. 31 L. J. Evertt, 3,645-53 feet, 30 bbls. per hour. Selby Oil & Gas Co. No. 12 Ingram, 3,527-35 feet, 84 bbls. per hour. Sun Oil Co. No. 16 J. T. Lodden, 3,626-31 feet, 38 bbls. per hour. Arkansas Fuel Oil Co. No. 38 Hughey & Ross, 3,529-54 feet, 52 bbls. per hour. J. G. Beard No. 5 E. Muckleroy, 3,603-04 feet, 100 bbls. per hour. Gulf Oil Corp. No. 22 R. H. Still, 3,538-75 feet, 41 bbls. per hour. Shell Petroleum Corp. No. 1 Williams & Bonner, 3,516-64 feet, 60 bbls. per hour. Sun Oil Co. No. 33 Hilburn-Lloyd, 3,654-55 feet, 62 bbls. per hour. Texas Co. No. 15 W. Baxter, 3,674-79 feet, 60 bbls. per hour

Rusk County

Humble Oil & Gas Co. No. 38-B H. Sexton, 3,614-73 feet, 60 bbls. per hour. Navarro Oil Co. No. 27 Brightwell, 3,645-61 feet, 60 bbls. per hour. Fair & Thompson No. 7-A W. E. Wiley, 3,596-3,623 feet, 20 bbls. per hour, pumping. R. Hardoway and others No. 5 London M. E. Church, 3,751-64 feet, 30 bbls. per hour. Humble Oil & Refining Co. No. 20 J. E. Glover, 3,693-3,714 feet, 60 bbls. per hour; No. 17-B M. & R. Kangerga, 3,648-50 feet, 65 bbls. per hour; No. 18-B M. & R. Kangerga, 3,630-32 feet, 65 bbls. per hour; No. 38 J. W. Turner, 3,702-17 feet, 66 bbls. per hour. Magnolia Petroleum Co. No. 9 D. Kelley, 3,606-20 feet, 40 bbls. per hour, pumping. Manahan Oil Co. No. 17 W. F. Neal, 3,749-51 feet, 45 bbls. per hour. Milford Oil Co. No. 8 M. A. Thrash, 3,710-30 feet, 60 bbls. per hour. Stanolind-Pure No. 6 W. H. Siler, 3,686-96 feet, 10 bbls. per hour, pumping. Fair & Thompson No. 7-B W. E. Wiley, 3,570-92 feet, 17½ bbls. per hour, pumping.

Upshur County

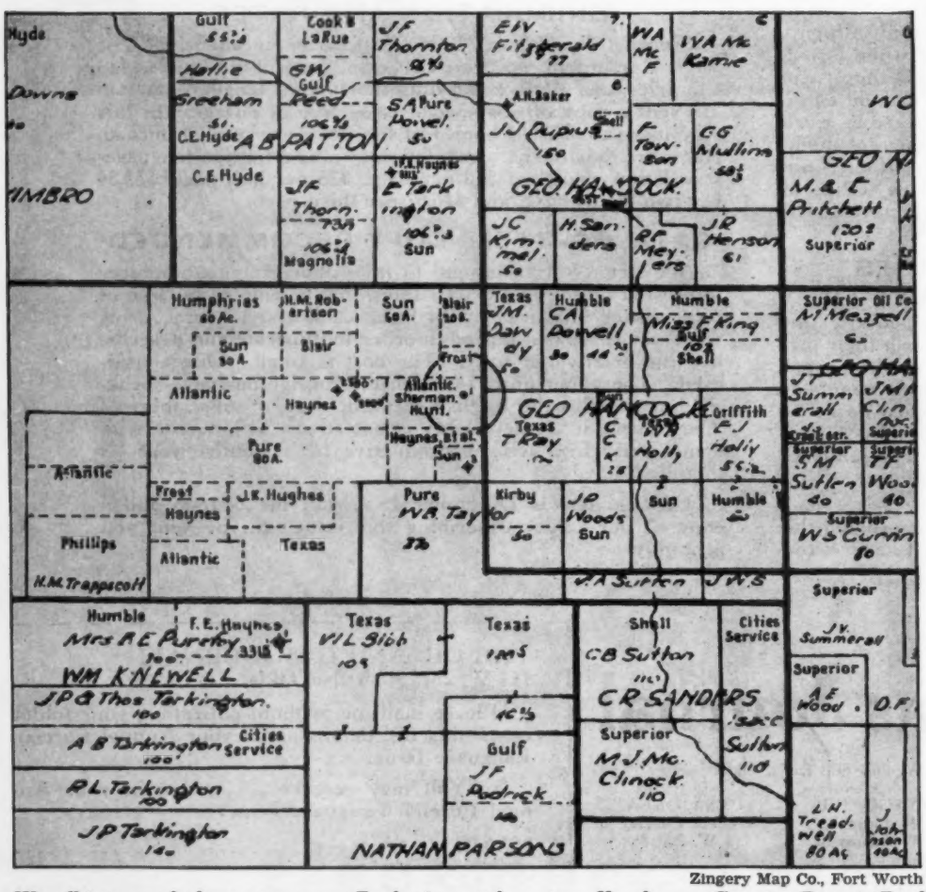
Ellis Oil Co. No. 16 C. J. Mackey, 3,700-3,701 feet, 23½ bbls. per hour; No. 17 C. J. Mackey, 3,675-79 feet, 11 bbls. per hour. P. H. Pewitt No. 19 L. A. Williford, 3,704-06 feet, 30 bbls. per hour.

EAST CENTRAL TEXAS COMPLETIONS

Franklin County

Four completions were made in the Talco field, as follows: Gray and Wolfe No. 2 Price, 4,240-4,312 feet, pumped 277 bbls. per day; Humble Oil & Refining Co. No. 4 Leake, 4,271-4,314 feet, 400 bbls. per day on the

(Continued on Page 69)



Zingery Map Co., Fort Worth

Woodbine sand discovery near Toole in northwestern Henderson County, Texas. Fred Haynes and others No. 1 A. R. Dillard, H. Jeffries Survey, flowed 128 bbls. per day from sand 3,093-3,138 feet

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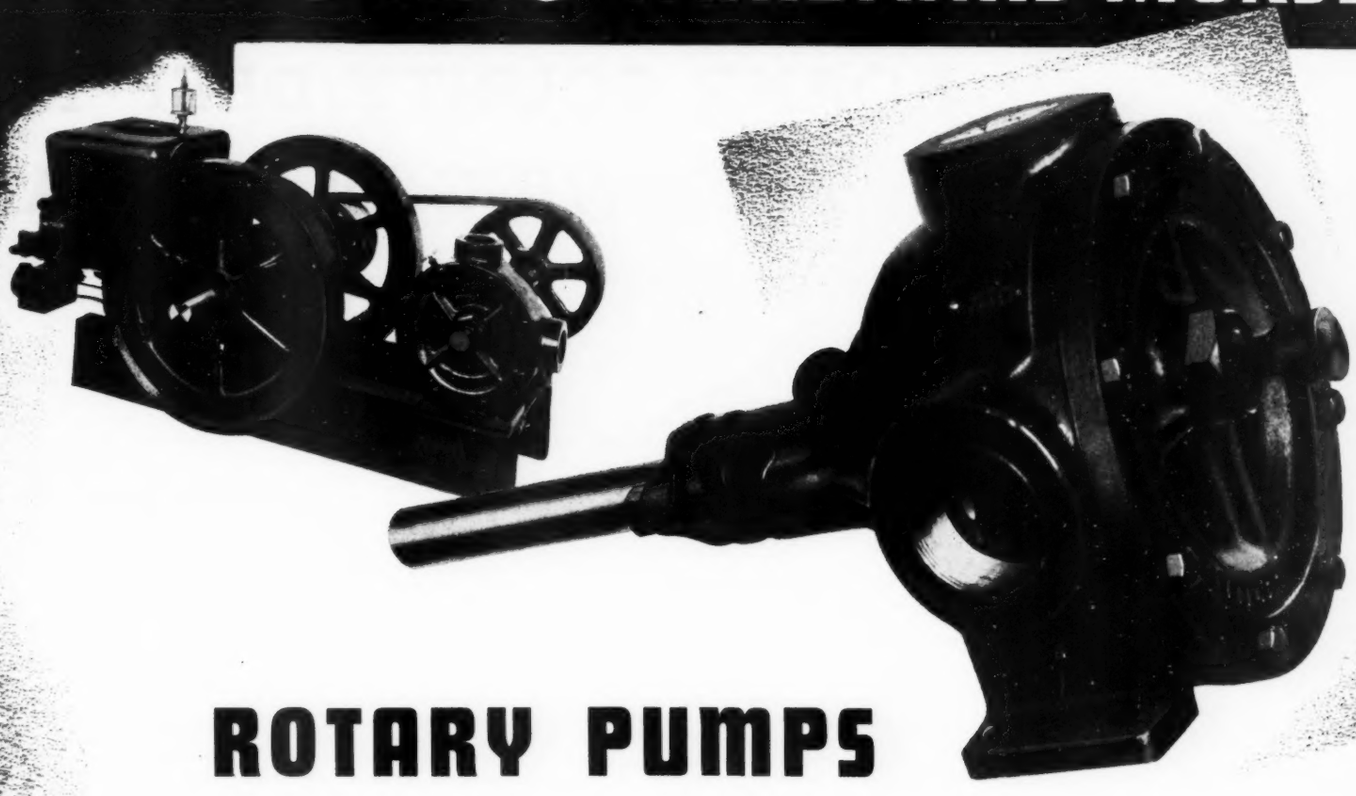

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CONTINENTAL

Eastern Field Report

By STAFF CORRESPONDENT

ROANE COUNTY DEEP TEST NOT SHOWING IN ORISKANY

PITTSBURGH, Pa., Nov. 29.—Another West Virginia deep wildcat is drilling through the Oriskany sand and the results are disappointing. In Harper district, Roane County, the Ohio Valley Gas Co. deepened No. 2 M. C. Larch and others and are 15 feet in the Oriskany sand without a showing of gas, oil or water. The Corniferous lime was topped at 5,254 feet, the Oriskany at 5,391 feet. The test is located between Left Fork and Green Rush Fork one-half mile east of Kettle. It is in the Quadrangle block, latitude 38° 30′ 35″, longitude 81° 25′ 30″.

The test of W. H. Bickel on the Reese Blizzard farm south of South Parkersburg in Tygart district, Wood County, West Virginia, continues to attract interest. The corrected top of the Oriskany sand is now 4,597 feet and the tools reached 4,606 feet, or 9 feet in the sand, when it was necessary to shut down for a new line. It was showing 27,000 feet of gas along with some oil. The oil was bailed out, and after standing two and a half days, there was 900 feet of solid oil in the hole with no water, or approximately production of 10 bbls. a day. The well will be deepened.

SOUTHEAST OHIO

In section 26, Wayne Township, Columbiana County, Ohio, Natural Gas Co. of West Virginia drilled through Clinton sand to 6,446 feet on the D. Desellem farm. After two shots, the gas gauged only 16,000 feet a day and the test will be plugged.

In Belmont County the Barnesville Development Co. drilled a dry hole on the Anton Doerak and others lease, section 2, Richland Township, through Berea sand to 1,713 feet.

In Monroe County, N. T. Staudt and others completed a second test on the J. G. Jackson farm in section 16, Center Township, in the Keener sand at 1,460 feet. After shot, it produced 1½ bbls. the first day.

In Noble County the Preston Oil Co. completed a second test on the Abby Davis farm in section 13, Olive Township, in the 800-foot sand at 1,137 feet. It is a gas well gauging 310,000 feet a day.

In Washington County, 2 miles southeast of Wolf Creek, Lot 1,072, Palmer Township, F. M. Russell and others drilled No. 4 Joseph J. Lorentz through the Cow Run sand to 695 feet and it was dry and abandoned.

SOUTHWEST PENNSYLVANIA

In Adams Township, Butler County, Pennsylvania, George L. Yaste & Co. completed No. 2 United Presbyterian Orphanage at 1,600 feet in the Hundred Foot sand and it is showing 25 bbls. a day.

Greene County

In Morris Township, Greene County, William Smith and others on the Phillip Fonner heirs drilled through the Fifth sand to 2,935 feet and it was dry and is being abandoned.

In Washington Township, Equitable Gas Co. is down 2,550 feet on the Pratt Yeager farm with Squaw sand at 2,355-2,430 feet and 60,000 feet of gas at 2,410-18 feet. Charles Mong and others are down 610 feet in No. 2 Jacob Johns. The Carnegie Natural Gas Co. is drilling at 345 feet in No. 2 Sadie A. Connor.

In Center Township, Carnegie Natural Gas Co. is drilling at 2,871 feet in No. 3 J. W. Milliken, and has rig up for No. 3 J. H. Orndoff. Rutan Oil Co. is drilling at 2,475 feet in No. 4 Charles T. Harvey. Charles Mong and others have reached 2,430 feet in No. 2 J. L. Metz (Weir).

In Springhill Township, J. H. McNichols & Co. are drilling at 1,250 feet in No. 3 J. W. McNichols. Taylor Oil & Gas Trust is running 10-inch to 850 feet in No. 5 Taylor. Southwest Pennsylvania Gas Corp. is cementing caves at 1,505 feet in No. 3 Thomas Smith. In Aleppo Township, Cochran & Cochran are fishing the tools at 1,625 feet in No. 4 John Strope.

In Richhill Township, Smith McCracken is shut down at 2,220 feet with a crooked hole in the test on the Asa Hughes farm. J. L. Blair is drilling No. 10 J. W. Bryan at 2,685 feet with the Fifty Foot sand at 2,640-78 feet and a show of gas at 2,644 feet. Convex Glass Co. shut down at 2,618 feet on the Van Voorhis test in Dunkard Township. In Richhill Township, Burleigh Wright is drilling at 1,275 feet on the Rush farm.

In Wayne Township, the Equitable Gas Co. is down 2,084 feet in No. 4 S. C. Brock. Manufacturers Light & Heat Co. was drilling at 1,895 feet and recementing the Johnson test. Johnson & Eddy were at 280 feet in No. 2 Maple Heirs. In Richhill Township, Manufacturers Light & Heat Co. is down 2,400 feet deepening No. 1 Albert Lyons.

Washington County

In Amwell Township, Washington County, Carnegie Natural Gas Co. is down 705 feet in No. 1 P. W. Reynolds, and at 643 feet in No. 1 F. M. Closser, and made location for No. 2 R. M. Carrons. In South Franklin Township, this company is drilling at 2,609 feet after setting casing in No. 3 Alberta Iams. The Gantz sand was at 2,553-86 feet with a show of gas and then water at 2,572 feet. South Penn Oil Co. is spudding No. 2 Piedmont Coal Co. F. K. Fawcett and others are drilling at 2,800 feet in No. 2 Clarissa Ramsey (Bonham).

In Peters Township, R. M. Duden and others are drilling at 1,780 feet in No. 2 J. W. Johnston. In North Strabane Township, Keystone Gas Co. is down 2,765 feet in No. 1 J. T. Beabout and at 1,055 feet in No. 1 H. W. Davidson. In South Strabane Township, Penn Ohio Oil & Gas Co. has reached 3,485 feet on the Porter Brothers farm.

In East Finley Township, Parkinson, Plants & Co. are drilling at 505 feet on the L. A. Phillips farm. In Morris Township the Duquesne Gas Co. is down 1,120 feet on the D. B. Hughes test.

Deep Tests

The test of Norwood P. Johnston and others on the James McBurney farm south of Hickory in Mount Pleasant Township, Washington County, is drilling at 6,608 feet, or 133 feet in the Onondaga, and has reached the point where possibly 40 more feet will take it to the Oriskany sand.

In Beaver County, John T. Galey and others are drilling at 4,300 feet on the James Tennis heirs farm in South Beaver Township. The tools are successfully passing through the gas blowouts in the shales and may reach the Onondaga this week.

The test of the Potter Development Co., William E. Snee and others on the Summit Hotel lease on Chestnut Ridge in South Union Township, Fayette County, is drilling at 4,000 feet and has reached the shales where the No. 1 met difficulty. In Hampton Township, Allegheny County, South Penn Oil Co. and others, unable to move the top string of tools lost at 6,238 feet, drilled by and shot them and have cleaned out again and the tools appear to be loose.

WEST VIRGINIA

In Lincoln County, West Virginia, Guyman Oil Co. completed a test on the Huntington Development Co. lease in Harts Creek district in Big lime at 1,430 feet. It was good for 48 bbls. a day, initially. This is the third well in that formation in the district.

In Calhoun County, Great Elk Oil Co. completed No. 35 Samuel Bauchman in Sheridan district in Salt sand at 1,856 feet. It is good for 5 bbls. a day. In Roane County, American Oil & Development Co. completed a test on the Ord Conley farm in Harper district in Salt sand at 1,625 feet. It is showing for 3 bbls. a day.

Gas Wells

In Boone County, Cambridge Gas Co. completed No. 13 Garnet Wiseman in Brown shale at 3,809 feet and it is a gas well gauging 68,000 feet a day.

In Cabell County, Zihlman Gas Co. completed a test on the Fred R. Zihlman farm in Guyandotte district as a gas well at 2,917 feet. Brown shale was at 2,505-2,917 feet, with 212,000 feet of gas at 2,530 feet.

In Gilmer County, Harley Ferrell's test on the Goff Sommers farm in Glenville district was completed at 1,758 feet, a gas well gauging 425,000 feet a day. Big Injun was at 1,671-1,749 feet, with the gas at 1,709-33 feet.

In Lewis County, McCall Drilling Co., on the Laura Alfred and others lease in Fremans Creek district, has a gas well gauging 344,000 feet a day. The Big Injun was at 1,988-2,103 feet with the gas at 2,062 feet.

In Lincoln County, Martin Gas Co. completed deepening the test on the Hager and McComas farm in Sheridan district at 3,333 feet. Starting at 2,140 feet, the Brown shale was at 3,034 feet, with 648,000 feet of gas at 3,060-70 feet and 3,100-10 feet. In this district the Stone Branch Gas Co. completed a test on the Mancy Madden farm at 3,220 feet. Brown shale 2,812-3,200 feet and 94,000 feet of gas at 2,845 feet. United Fuel Gas Co. completed No. 4,773 on the J. T. Morrison farm in this district at 3,721 feet. The Big lime was at 1,345-1,505 feet, Big Injun 1,575-1,645 feet, Berea 2,119-32 feet, Brown shale 2,445-3,715 feet with 124,000 feet of gas at 2,122-30 feet and 3,277 feet.

In Pleasants County, H. P. McGinnis & Co. test on the J. H. Farson farm in Jefferson district was completed at 970 feet in Berea sand. It gauges 20,000 feet a day.

In Ritchie County, West Virginia Investment Co. drilled No. 22 on the Joseph Parks farm in Grant district through the Injun sand to 2,029 feet and it was a dry hole.

In Wayne County the Mountaineer Gas Co. completed No. 2 Otto Adkins in Union district in Brown shale at 3,485 feet. It is a gas well gauging 148,000 feet a day.

In Wirt County the R. C. Waggoner test on the Mary E. Pribble farm in Burning Springs district was dry at 3,042 feet, and is abandoned.

Oriskany Gas Field

Several good gas wells were completed in Kanawha County in the Oriskany gas pools. In Poca district United Fuel Gas Co. No. 4,758 on the C. T. Tolley farm, depth 4,837 feet, gauges 17,694,000 feet a day. In this district the Lima Gas Co. test on the Letha Moss farm, 5,158-67 feet, gauged 15,277,000 feet a day. In the same district, Godfrey L. Cabot, Inc., completed a test on the Katherine B. Jarrett farm in Oriskany sand, total depth 4,781 feet, and it gauges 14,700,000 feet a day.

In Union district, Kanawha County, the Mullins Gas Co. on the Sarah S. Dawley farm had Oriskany sand at 4,934-46 feet and has a 160,000-foot gas well.

In Malden district, Kanawha County, Glenn Oil & Gas Co. on the L. W. Williams farm had the top of the Corniferous lime at 4,357 feet, the Oriskany at 4,461 feet, and 52,000 feet of gas showing at 4,467 feet.

In Elk district the United Fuel Gas Co. has reached 5,145 feet in the test on the D. M. Canterbury farm and it is showing 431,000 feet a day at that depth. The Columbian Carbon Co. topped the Corniferous lime at 4,932 feet in the test on the Omer L. Birdette farm.

In Poca district the United Carbon Co. is drilling at 4,820 feet on the Garfield Spencer farm, and at 4,680

(Continued on Page 88)

North Louisiana, Arkansas

By GEORGE WEBER

PIPE LINES MAY CUT RUNS A THIRD IN RODESSA, ARK.

SHREVEPORT, Nov. 29.—Louisiana conservation authorities have fixed the daily allowable production in that state at 253,975 bbls. for the month of December, or 9,975 bbls. per day more than the estimated demand established by the United States Bureau of Mines. In Arkansas the Bureau of Mines estimate the December demand at 33,900 bbls. per day but Arkansas fields are producing over 45,000 bbls. per day which appears to meet with the approval of the Arkansas conservation board.

Plans for reduction of pipe line runs by purchasers in the unprorated Arkansas section of Rodessa, coupled with production tests in the new Standard Oil Co. of Louisiana Buckner discovery well in Columbia County attracted major attention to Arkansas this week.

In an effort to reduce drainage from leases on the Louisiana side of the state line, caused by the unrestricted production of Miller County, Arkansas, wells, one of the three pipe line companies serving the latter section is reported preparing to reduce its purchases in Miller County to a maximum of 200 bbls. per well.

The action follows the postponement of proration measures by the Arkansas State Board of Conservation until January 1, allowing most wells in Miller County to produce over 300 bbls. each, while those in the Louisiana and Texas sections of the tri-state field are cut by state regulatory bodies to average flows of 100 bbls. and 60 bbls. each respectively. Action by one of the pipe line companies will be followed, it is expected, by the remaining two. In addition to the curtailment of drainage across the Texas-Arkansas state line, the move will contribute to the reduction of oversupply and growing stocks of crude during the present slack market season.

Buckner County

In Columbia County, Arkansas, the Standard Oil Co. of Louisiana No. 1 J. P. McKean, C SW SW, sec. 8-16s-22w, discovery well of the Buckner field, flowed 286 bbls. in 6½ hours with tubing pressure of 250 pounds and casing pressure of 360 pounds on a one-quarter inch choke, after acidizing with 2,000 gallons. Total depth of the test is 7,258 feet. On a later test, the well made 1,368 bbls. in 19 hours, during which the chokes were varied from one-half inch to one-fourth inch. Lack of storage in the field has caused pinching down of the flow, and operators are making further production tests.

Wells in the Arkansas sector of Rodessa, numbering 45, are making a total daily average of 12,235 bbls. showing a decline in the individual well average to about 270 bbls. Rodessa, in Caddo Parish, Louisiana, has 423 wells producting 44,144 bbls. per day an average per well of 104 bbls. The Texas portion of Rodessa, including Cass and Marion counties embraces 374 wells producing 21,731 bbls. daily or 58 bbls. per well.

RODESSA COMPLETIONS

Miller County, Arkansas

H. L. Hunt No. 5 Womack, SW SW SE section 10-20-28, initial production 15 bbls. per day, tubing pressure 0, casing pressure 800 pounds, total depth 6,090 feet.

W. M. Layton No. 3 Terry, SE SE SW section 14-20-28, flowed 65 bbls. per hour through open tubing, casing pressure 800 pounds, tubing pressure 200 pounds, total depth 6,096 feet.

Skelly Oil Co. No. 1 Thomas, SW SE SW section 12-20-28, 18 bbls. per hour on five-eighths inch choke, tubing pressure 145 pounds, casing pressure 475 pounds Total depth 6,140 feet.

Marion County, Texas

Fohs Oil Co. No. 1 W. T. Neilon, R. Bennington Survey, 390 bbls. per day on a 20/64-inch choke, tubing pressure of 250 pounds, casing pressure 600 pounds, total depth 6,090 feet.

Heyser, Heard and Clardy No. 1 L. Henderson, R. Bennington Survey, flowed 91 bbls. per hour on open tubing with tubing pressure of 250 pounds and total depth at 6,030 feet.

Mid-Continent Petroleum Corp. No. 4 Sory, Coy Survey, 7½ bbls. per hour through open tubing, with casing pressure of 475 pounds and total depth of 6,082 feet.

Estimated Daily Production

Estimated daily gross production all companies week ending November 27.

NORTH LOUISIANA

	Barrels
Bellevue	725
Caddo light	3,850
Caddo heavy	2,730
Converse	650
Cotton Valley heavy	360
Cotton Valley light	*3,300
De Soto and Red River	1,400
Elm Grove	390
Haynesville	3,010
Holly	105
Homer	2,430
Lisbon	7,380
Pleasant Hill	120
Rodessa	44,145
Sarepta-Carterville	300
Sligo	300
Sugar Creek	345
Urania	2,765
Zwolle	630
Total	74,935

SOUTH ARKANSAS

Champagnolle	1,325
El Dorado	1,945
Lisbon	285
Miller County	440
Nevada	740
Rodessa	12,235
Schuler	6,650
Smackover light	2,110
Smackover heavy	16,790
Stephens	580
Troy	1,115
Urbana	1,215
Total	45,430

Texas side of Rodessa field 21,730 bbls. daily.

*2,830 bbls. is distillate.

Caddo Parish, Louisiana

Standard Oil Co. of Louisiana No. 1 Mrs. Alice N. Gibson, NW NE SW section 10-23-16, 450 bbls. per day on half-inch choke, casing pressure 450 pounds, tubing pressure 190 pounds, gas-oil ratio 1,462-1. Total depth 5,947 feet.

R. G. Trippett and others No. 2 Davis, section 3-23-16, 17 bbls. per hour on 21/64-inch choke, tubing pressure 400 pounds, casing pressure 800 pounds, total depth 5,973 feet.

A. O. Olson No. 1 R. T. Sharp, W half NW section 15-18-16, has cored showings of gas and distillate below 5,609 feet to a total depth of 5,624 feet. Casing is being set in the Blanchard Trinity test.

Killam & Smith No. 3 Hart, SW section 29-21-16, was abandoned at total depth of 1,089 feet in the Caddo field.

Louisiana Oil Production Co. No. 9-B Muslow, an old producer drilled deeper, completed at 2,182 feet for 20 bbls. per day, pumping, in the Caddo field.

P. A. Singlust No. 2 Starr-Brown, SE section 18-20-16, Caddo field, abandoned in salt water sand at 1,820 feet.

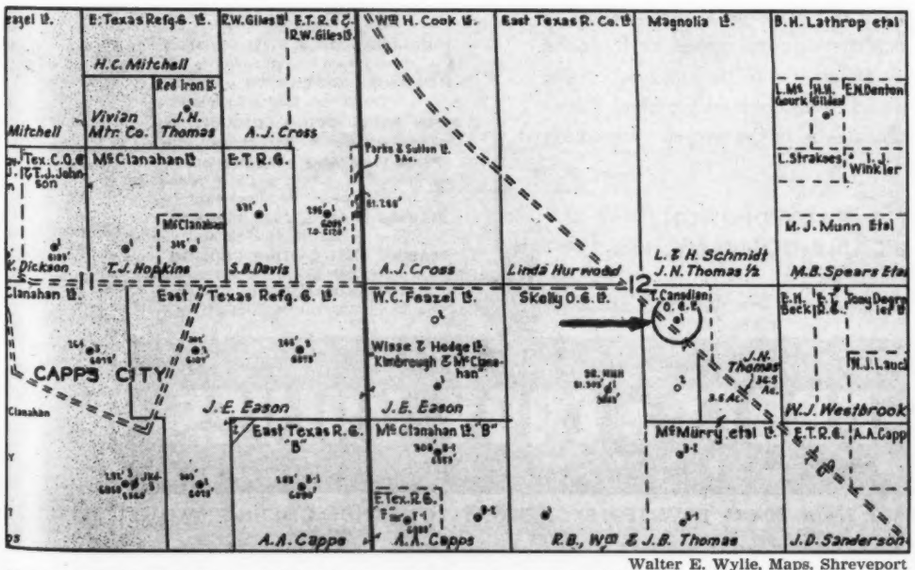
Claiborne Parish

Atlantic Refining Co. No. 2-C Patton, E half SW SE section 29-21-4, in Lisbon field was completed for 85 bbls. per hour on three-fourths inch choke, tubing pressure 150 pounds, casing pressure 475 pounds, total depth 5,203 feet.

Union County, Arkansas

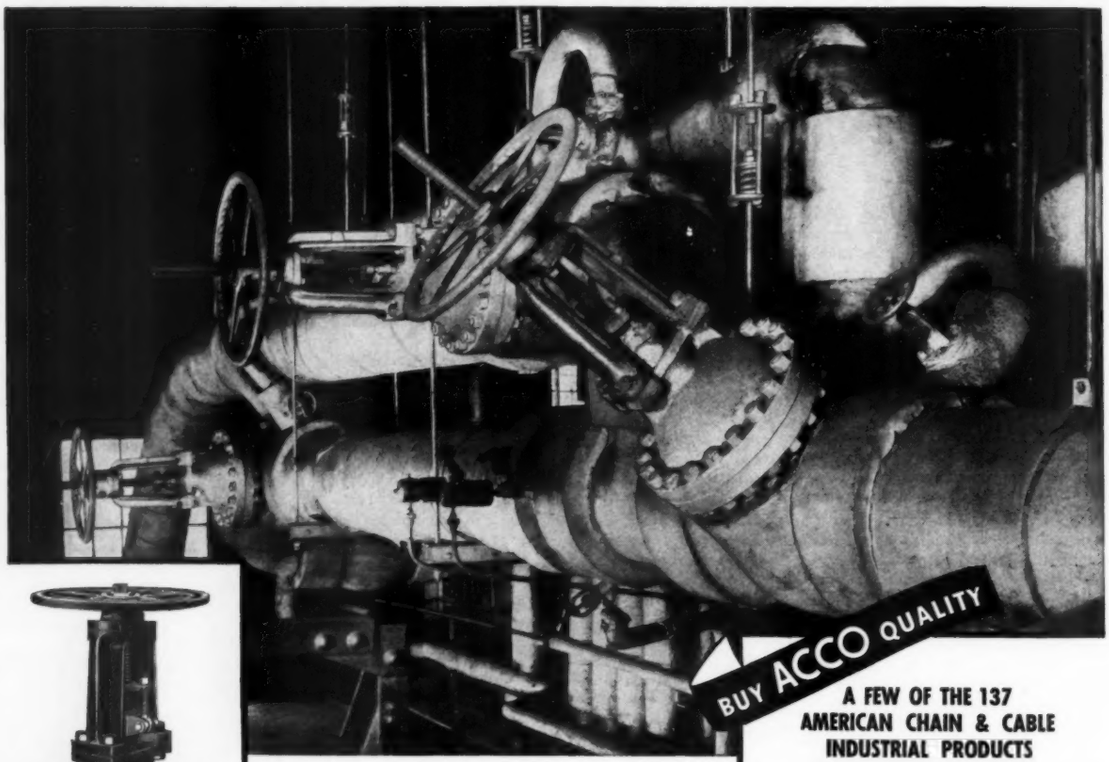
Fifteen tests are under way in the Schuler field of

(Continued on Page 88)



Walter E. Wylie, Maps, Shreveport

Most active drilling sector of the Rodessa field at present is Miller County, Arkansas, where 13 wells are drilling. One test, Texas Canadian Oil Co. No. 1 Thomas, in C section 12-20-28, is preparing to core for the sand, located in a northeast outpost position from the present edge of production



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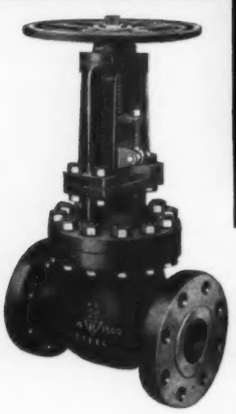

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West and North Texas

By MITCHELL TUCKER

EXTENDS DENVER POOL MILE; 38 DEEP TESTS IN K.M.A. POOL

FORT WORTH, Tex., Nov. 29.—Only one new wildcat location was staked in the West Texas Basin area last week, that being in Gaines County, Shell Petroleum Corp. No. 1 M. B. Robinson, section 344, Block G, C.C.S.D. &R.G.N.G. Survey, in the active trend play between the Seminole and Wasson fields of Gaines County.

Foremost among the completions was the good flowing producer that afforded a mile eastern extension of the Denver pool in southern Yoakum County. Denver Producing & Refining Co. No. 1-A Whittenburg flowed 561 bbls. on initial 24-hour test through open 2½-inch tubing set at 5,042 feet, with pay sand at 4,906-5,084 feet. Gas gauged about 1,500,000 feet after stage treatments with acid, using 1,500 and 6,000 gallons for the first and second charge, respectively. This and other promising wildcats in Yoakum County has further stimulated the lease play extending up through Gaines, Yoakum and Cochran counties.

The American Liberty No. 1 W. W. Willard, 1½ miles northwest of production in the Wasson pool and 4 miles southeast of Denver Producing & Refining Co. No. 1-A Whittenburg, is being closely watched as it checks favorably on important markers, and may prove the connection of these two producing areas.

Magnolia Petroleum Co.'s important Ordovician prospect in the Imperial area a short distance west of the Pecos River in northwestern Pecos County, No. 1 McKee, is shut down at 4,924 feet. Leasing in this area is active, on the strength of the high point at which the Simpson lime (Middle Ordovician) was topped, when correlated with all nearby deep tests.

In Runnels County, the E. Z. Oil Co. No. 1 B. Fletcher, E. C. Good Survey, attracted attention when it topped the Palo Pinto at 4,030 feet and the Strawn at 4,230 feet. A porous section carrying showings of oil has been drilled from 4,391 to 4,394 feet, at which point the well is now shut down pending further orders.

NORTH TEXAS

The Kemp City (K.M.A.) field of southern Wichita County continues to be outstanding in North Texas developments, as exploration to the deep 4,000-foot pay level continues in all directions. There are eight wells nearing the completion stage which, if commercial producers, will extend the deep sand field 1 mile or more. There are four possible extension wells being drilled to the west, two to the north, and two to the east. Thirty-eight wells are drilling and 12 rigging up at Kemp City, all having the 4,000-foot level as their objective. Four completions in this sand were made last week, having an aggregate initial production of 3,076 bbls.

Among the extensions made to K.M.A. last week, the Staley-Omohundro and Stilley No. 1 First National Bank, Lot 10, Block 27, W.V.F.L. Survey, was outstanding as it drilled 20 feet of fully saturated sand at 3,732-52 feet and flowed over the mast head of the drilling rig. This well is a semiwildcat, about one-half mile east and south of the King Oil Co. big producer, No. 1 Sue Mitchell. Also, the E. C. Norwood test in the northeast corner of Block 4, F. Peterswich Survey, is being closely watched as it promises to extend the field into Archer County after drilling oil sand from 3,840-46 feet. Testing will begin at this well next week.

Important lease trades continue in this field. Sunray Oil Co.'s purchase of 200 acres in semiproven territory from Jack Kadane of Wichita Falls, in the Castleman Survey, headed the list of big sales last week. Consideration was reported to have been $250,000 cash and a like amount out of one-quarter of first oil produced.

Grayson County

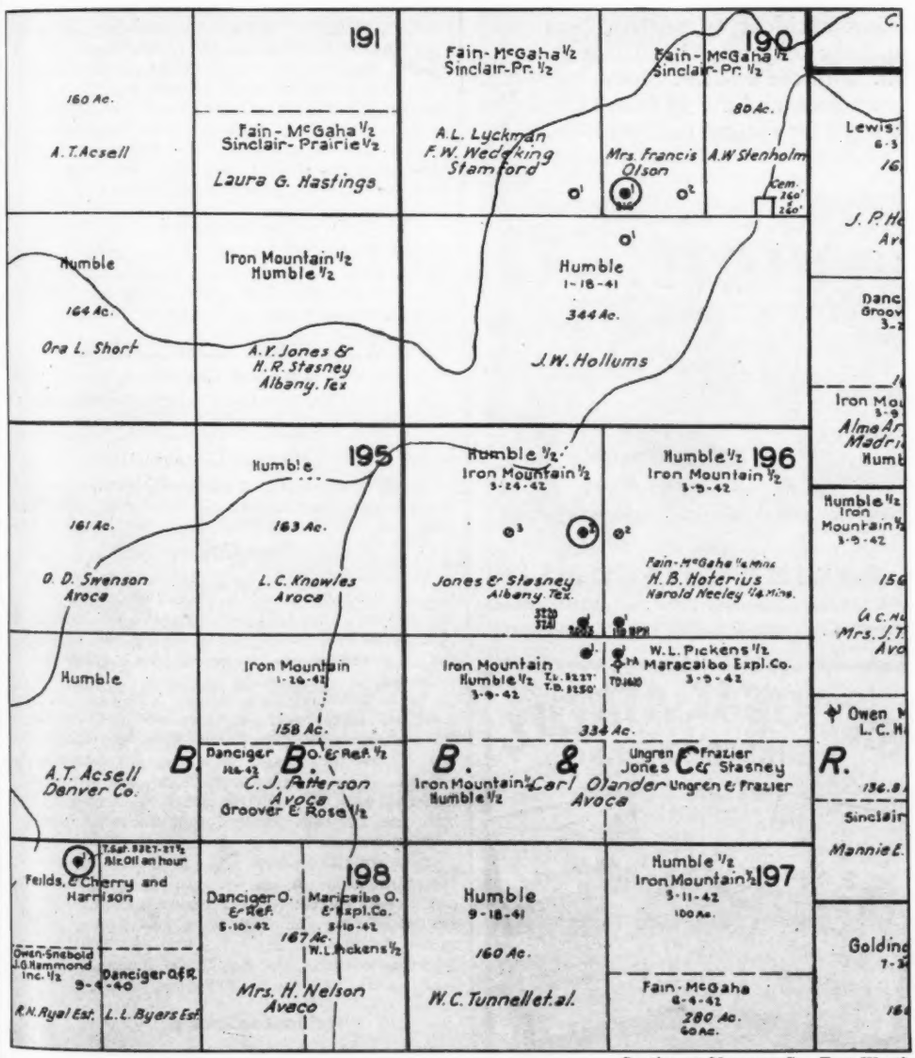
A second and possibly a third test of the Whitesboro area in Grayson County, northeastern Texas, is promised by Denver Producing & Refining Co., as the company is temporarily abandoning No. 1 Cannon Estate, Elizabeth Barnes Survey, because of inability to shut off salt water after making nine unsuccessful cement jobs over the past five months. Prior to the appearance of salt water, the discovery well at Whitesboro pumped about 100 bbls. per day from a sand penetrated from 2,392 to 2,428 feet. The Cannon well was bottomed at 5,011 feet, and plugged back to the upper oil level. It is reported that the Denver company will immediately drill two additional tests in an effort to prove up the field, one about 1 mile to the east and the other about 1 mile to the west of No.1 Cannon.

WEST CENTRAL TEXAS

Recent extensions to the Avoca field of northeastern Jones County, indicate that it may be a pool of major size. After being opened last summer by Iron Mountain Oil Co. and Humble in the B.B.B.&C. Survey, Sinclair-Prairie and Fain-McGaha No. 1 Olson extended the field over a mile to the north after flowing 868 bbls. in 14 hours from the Palo Pinto lime from 3,213-20 feet. Attention is now centered upon a possible 1½-mile extension to the southwest, as Owen Murray and Harrison No. 1 J. N. Rail, Block 198, of the same survey, penetrated the saturated lime at 3,327 feet, and free oil made its appearance after drilling only 1 foot into the section. Preparations are being made to run casing, deepen and test.

PANHANDLE DISTRICT

The Railroad Commission's first gas proration order for the Panhandle district since the decision last February by the U. S. Supreme Court invalidating the prior order, will go into effect on December 1, 1937. The new order, based on market nominations, placed the daily allowable for the East sweet gas area at 134,772,000 feet as compared to 178,229,000 feet permitted in the December, 1936, order and 207,513,000 feet in the January, 1937, order. In allocating this daily allowable to the individual gas-producing wells or tracts,



Southwest Mapping Co., Fort Worth

Portion of rapidly developing Avoca field of Jones County, West Central Texas. Circles indicate important recent extensions to the north and southwest

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two-thirds of the total is given on an acre-pounds factor (computed by multiplying the acreage times pressure) and one-third on potential. Prior orders, which were invalidated by the court, prorated allowables one-half on acreage and one-half on potential.

Only one area of the big field was covered by the order, as the commission decided omission of the other gas fields would cut expense and work pending an expected court test of the validity of the new measure.

NORTH TEXAS COMPLETIONS

Archer County

D. S. Johnson No. 1 L. G. Williams, 835 feet, dry. H. D. Lyon No. 1 J. H. White, 1,614 feet, dry. J. T. Miller No. 2 Oil Investment Co., 1,246 feet, dry.

Clay County

W. H. Gant No. 2 Worsham Estate, 3,395-3,407 feet, 50 bbls.

Cooke County

Hester Oil Co. No. 6 R. W. Trew A, 1,235-55 feet, 15 bbls. Trumter Oil Co. No. 8 G. T. Andress, 772-92 feet, 50 bbls. Trumter Oil Co. and others No. 14 G. T. Andress, 781-803 feet, 102 bbls.

Jack County

R. D. Compton No. 14 Claudia Henson, 360 feet, dry. W. R. Dearing No. 9 S. M. Jones, 3,221-28 feet, 250 bbls. York-Tex & States No. 6 J. R. and C. P. Clayton B, abandoned location.

Montague County

O. V. Beck No. 13 Cora L. Davenport, 2,007 feet, dry. Bridwell Oil Co. No. 11 Mrs. M. H. Salmon A, 1,626-38 feet, 60 bbls.; No. 12 Mrs. M. H. Salmon A, 1,008-16 feet, 20 bbls. Lesh & McCall No. 4 R. Hinds, 1,171 feet, dry.

Wichita County

L. T. Burns No. 19 First National Co., 3,627-3,830 feet, 500 bbls. Hammon and Hanlon-Buchanan, Inc. No. 1 A. F. Fassett, 4,000-18 feet, 1,000 bbls. King Oil Co. No. 1 L. N. Lockridge, 478-90 feet, 10 bbls.; No. 2 River Bed, 471-80 feet, 10 bbls. LeBus and others No. 1 G. W. Lewis, 3,726-85 feet, 750 bbls. Petroleum Production Co. No. 18 First National Co., 3,645-3,838 feet, 776 bbls. Seaberry & Rose No. 1 Hunt, 250 feet, junked. E. Schlaffke No. 8 S. S. Fassett, 890 feet, dry.

Young County

F. A. Clarida No. 1 fee, 611 feet, dry. Howard Petroleum Corp. No. 11 G. P. Stewart, 539-50 feet, 10 bbls. Texas Co. No. 13 W. T. Finch B, 652-80 feet, 50 bbls. Wootten & Wilson No. 2 S. R. Jeffery, 750 feet, dry.

WEST TEXAS COMPLETIONS

Dawson County

A wildcat test, Roy Albaugh No. 1 Hobb, has been abandoned as dry, depth 3,865 ft.

Howard County

Johnson & Bruce No. 2-C Hyman, Chalk-Roberts field, pumped 500 bbls. per day after acid, 2,511-2,906 feet.

Ector County

Cities Service Oil Co. No. 3 Bagley, Foster field, 892 bbls. per day, 4,099-4,251 feet. Sunray Oil Co. and others No. 5 Foster, 3,988-4,171 feet, 604 bbls. per day. Sinclair Prairie No. 2 Glass, 4,153-4,348 feet, 405 bbls. per day. M. J. Delaney No. 1 Smith, 405 bbls. per day, 4,155-4,321 feet.

In the Goldsmith field, Texas Pacific No. 9 Scharbauer, 4,174-4,425 feet, 2,472 bbls. per day. Dunning No. 3-A Scharbauer, 4,150-4,226 feet, 1,668 bbls. per day. Atlantic Refining Co. No. 2 Slator, 4,186-4,300 feet, 588 bbls. per day. Humble No. 8 Cowden, 4,197-4,267 feet, 1,155 bbls. per day. Continental No. 5 TXL, 4,180-4,280 feet, 629 bbls. per day. Gulf No. 51 Goldsmith, 4,137-4,210 feet, 2,268 bbls. per day.

In North Cowden area of Ector County, Landreth-Phillips No. 5 Holt flowed 442 bbls. per day, 4,140-4,219 feet. Wentz Oil Co. No. 1-D Parker, 4,060-4,245 feet, 828 bbls. per day. Landreth No. 1-N Scharbauer, 4,125-85 feet, 507 bbls. per day.

Milboon Drilling Co. No. 1 Gulf Bluebeney, abandoned as dry, total depth 4,503 feet.

Jones County

Guitar field, R. S. Allred and Gray No. 2 H. Jackson. 1,976-2,081 feet, 190 bbls. per day. Thomas D. Humphrey No. 4 Guitar Estate, 2,005-17 feet, 125 bbls. per day. Warren & Kroker No. 1 Shankles, 1,977-2,002 feet.

50 bbls. in 20 hours. In the Sayles field, Lewis Production Co. No. 1 Wooters, dry and abandoned at 2,050 feet. Their No. 8 Sayles, Jr., flowed 132 bbls. in four hours, 1,976-2,000 feet.

Three wildcat tests were abandoned in Jones County last week as dry: Butler & Harris Drlg. Co. No. 1 Cox, depth 2,790 feet. Maro Co. No. 1 Webb, depth 1,750 feet. Roeser & Pendleton No. 1 Rasenquist, depth 3,370 feet.

Howard County

Sinclair Prairie Oil Co. No. 6 Texas Land & Mortgage Co., 413 bbls. per day, depth 2,885 feet.

Pecos County

In the Pecos Valley field, W. H. Street No. 2 Pecos Valley, 1,620-45 feet, 74 bbls. per day. Black and others No. 5 Pecos Valley, 1,543-95 feet, 25 bbls. per day. Union Oil & Mining Co. No. 1 fee, 1,800-68 feet, 54 bbls. per day.

In the shallow Tippett field, Stanolind-Continental No. 13-C Tippett pumped 7 bbls. per day, 417-54 feet. Cardinal Oil Co. No. 19-A Smith, 96 bbls. per day by pumping, 361 feet. Childers No. 25 Smith, dry and abandoned at 400 feet.

Stonewall County

General Crude Oil Co.'s wildcat in Stonewall County, No. 1 Harrison, has been abandoned after drilling water sand from 3,675-80 feet.

Upton County

McCamey field, Acme Oil Co. No. 1 Shirley, pumped 325 bbls. per day, 2,162-76 feet. Continental Oil Co. No. 16 Reese, 629 bbls. per day, 2,600-41 feet.

Ward County

At Grand Falls, Lynch No. 7-A Himmel, pumped 362 bbls. per day, 2,240-2,536 feet. In the Hathaway field, Gulf No. 46 Estes, 221 bbls. per day, 2,310-2,620 feet. No. 61 Estes, 1,236 bbls. per day, 2,520-2,670 feet. Standard of Texas and Atlantic No. 5 McFarland, 80 bbls. per day, 2,475-2,640 feet. Richardson Oil Co. No. 5-A Johnson, 376 bbls. per day, 2,590-2,621 feet. Gulf No. 90 Hutchinson, 2,520-2,720 feet, 268 bbls. per day. Standard of Texas No. 20-37 McFarland, 563 bbls. per day, 2,442-2,617 feet. At O'Brien, Culberson & Irwin No. 2 Sealey flowed 300 bbls. per day, 2,575-2,727 feet.

Winkler County

In the Winkler field, Gulf No. 20 Clapp, 630 bbls. per day, 2,810-3,115 feet. No. 21 Clapp, 557 bbls. per day, 2,820-3,110 feet. Shell and Texas No. 2-B Cowden, 204 bbls. per day, 2,760-3,015 feet. Magnolia Petroleum Co. No. 112 Walton, 1,168 bbls. per day, 2,830-2,920 feet. Humble No. 22-C Colby, 1,120 bbls. per day, 2,790-3,075 feet. Texas Pacific No. 3-F Duval-Royalty, 1,065 bbls. per day, 2,504-3,090 feet.

Yoakum County

Denver Producing & Refining Co. No. 1-A Whittenburg, mile extension to the Denver field, flowed 561 bbls. per day, 4,906-5,084 feet.

East Texas Fields

(Continued from Page 62)

pump; Magnolia Petroleum Co. No. 2 Blackburn, 4,285-4,300 feet, pumped 360 bbls. per day; and Magnolia Petroleum Co. No. 14 K. Mainard, 4,235-4,300 feet, 278 bbls. per day.

Anderson County

At Long Lake, A. McCutchin No. 1 J. Brantley, 5,311-34 feet, flowed 206 bbls. per day.

Freestone County

Stanolind Oil & Gas Co. No. 4 Cullinan, 3,988-4,038 feet, 28 bbls. per hour, Cayuga field.

Henderson County

In the newly opened Woodbine pool of Henderson County, near Toole, Fred Haynes and others No. 1 A. R. Dillard, in the H. Jeffries Survey, flowed 128 bbls. daily from sand drilled 3,093-3,138 feet.

At Cayuga, F. M. Allison No. 4 G. Williams, 4,071-85 feet, 144 bbls. per day.

Hopkins County

Two completions were made last week in Sulphur Bluff: W. Goldson No. 19 Smith, 4,518-32 feet, 144 bbls. per day, and Hage-Luce and Russ No. 4 J. Worsham, 4,498-4,520 feet, 300 bbls. per day.

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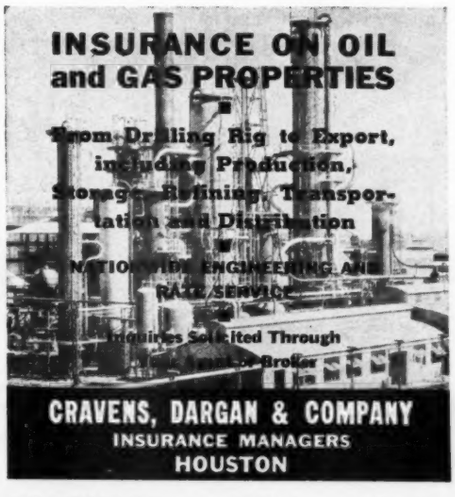
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FORT WORTH, TEXAS

Texas and Louisiana Gulf

By
NEIL WILLIAMS

TEXAS AND LOUISIANA HAVE PROSPECTS OF 2 NEW FIELDS

HOUSTON, Tex., Nov. 29.—The Texas and Louisiana sectors of the Gulf Coast district were apparently assured of two new fields as core records and drill stem tests showed favorable possibilities. The two wildcats are of more than ordinary importance in as much as they are located along the shoreline of the Gulf of Mexico, which during the past several months has been the scene of much leasing and geophysical work. If production is developed it will substantiate the theory that there are numerous potential oil reserves to be developed along the shoreline, inland bays and for several miles out into the Gulf of Mexico.

Superior Oil Co. and Pure Oil Co.'s joint test, No. 1 State, Gulf of Mexico, 1 mile offshore from the Cameron Parish, Louisiana, line from Township 15s-8w, was looked upon as a pool opener as a Schlumberger survey showed 70 feet of oil sand at 5,110-80 feet. The survey log was confirmed by side wall cores taken at 5,115, 5,135, 5,165 and 5,185 feet, which recovered light brown oil sand. The hole is being carried deeper for exploratory purposes before it will be plugged back and tested. Late in the week it was coring in shale below 6,711 feet.

This structure was located by geophysics, which indicated comparatively shallow possibilities. The company controls a block of several thousand acres extending in a narrow strip along the shoreline for several miles, which was leased from the state for a reported price of $50,000. Pure Oil Co.'s leases consist of about 6,000 acres, which were also worked with geophysical instruments. Actual development is in charge of the Superior Oil Co.

On the McFaddin or Long Lake Prospect, located west of Sabine Pass in the S. A. Pace Survey No. 2, Jefferson County, Texas, Shell Petroleum Corp. No. 1 McFaddin cored sand showing oil from 5,391 to 5,408 feet and on a nine-minute drill stem test it showed 45 pounds of pressure, 450 feet of pipe line oil and 60 feet of mud, with no water. It is being cored deeper and from last reports it was coring ahead in oil sand at 5,439 feet. This block, consisting of some 50,000 acres, is held jointly with the Humble Oil & Refining Co. on a fifty-fifty basis. Since the block is held solidly by the two companies there is little chance of any other company participating in the play, although a scramble for state leases, along the shoreline, adjoining the block to the south and southeast is anticipated when these tracts are put up for bids.

Wildcats Increasing

The above wells bring to light the increasing number of wildcats getting under way along the shoreline and inland bays. About 9 miles south of Sabine Pass and 150 feet out into the Gulf from section 72, Jefferson County, I. E. Harwell is driving piling foundations for No. 1 State, which has a projected depth of 8,000 feet. In Galveston Bay, offshore from Chambers County, Salt Dome Oil Corp. and Standard Oil Co. of Texas are driving piling for No. 1 State, while Humble Oil & Refining Co. is expected to start operations on its No. 1 State Gulf of Mexico offshore from the Jefferson County line. Extensive geophysical work continues southwest to a point below Corpus Christi.

Friendswood Partly Defined

The southwestern limits of the Friendswood field, Harris County, were defined by the abandonment of Humble Oil & Refining Co. No. 1 Jones and May which was given up in salt water sand at 6,188 feet. Due north of this dry hole and about a half mile south of production, the same company's No. 1 Hicks-Hoidal flowed 27 bbls. per hour through a quarter-inch choke from a screen setting at 6,035-55 feet, the total depth. To the north, and located in the Genoa area, little hope was given Gulf Board Oil Corp. No. 1 Ellen B. Ross which is preparing to core at 6,175 feet. It is running about normally with Circle Oil Co.'s dry hole to the southeast. In the same county and located in the Dear Park area, Cockburn Oil Corp. No. 1 White was drilling below 5,090 feet. The Heterostegina was topped at 5,090 feet.

In the Call field, Newton County, Houston Oil Co. and Republic Production Co. No. 2 Sabine Tram has reached the pay level and was not looking encouraging. It is coring in hard shale below 6,900 feet after a drill-stem test at 6,895-6,909 feet showed 27 thribbles of salt water. It is located about 2,100 feet southwest of the discovery well. It is the second well drilled since the completion of the discovery well. The other test, located to the northeast, was dry.

In the southwest extension of the Hardin field, Liberty County, Woodley Petroleum Co. No. 4 McMurtry cored oil sand at 7,582-91 feet, total depth, and 7-inch casing has been cemented at 7,595 feet. To the southeast, Strake Petroleum Co. No. 2 Finley cored sand at 7,532-48 feet and is coring ahead below 7,559 feet. Sun Oil Co. is building road for No. 1 Cessna, a west offset to Strake Petroleum Co. No. 1 Finley in the A. B. Hardin Survey.

H. J. DeArman was testing No. 1 Edmundson in the Sandy Point field after perforating the casing at 6,557-65 feet. The well is about 6,000 feet southeast of production and has shown salt water on two previous tests at 6,520-30 feet and from 6,505-09 feet.

Distillate Well in Cheek Field

In the Cheek field, Jefferson County, Magnolia Petroleum Co. recompleted No. 1 Phelan, and it is a distillate producer. Perforations were made at 8,400-10 feet and it flowed 152.51 bbls. of distillate in 24 hours through a 12/64-inch choke. The well was originally completed in this horizon but was deepened after a second well was completed as a large oil producer. The rig is being moved 933 feet south of No. 2 Phelan in the S. Stivers Survey.

In the Katy area, Waller County, Stanolind Oil & Gas Co. No. 1 Security Trust Co., 1 mile west of the discovery well, is being watched closely as it cores ahead in sand and shale with a gas odor. The well is checking lower than the discovery well and the outcome may give this area its first oil well. Previous development has resulted in wet gassers.

Louisiana Coast

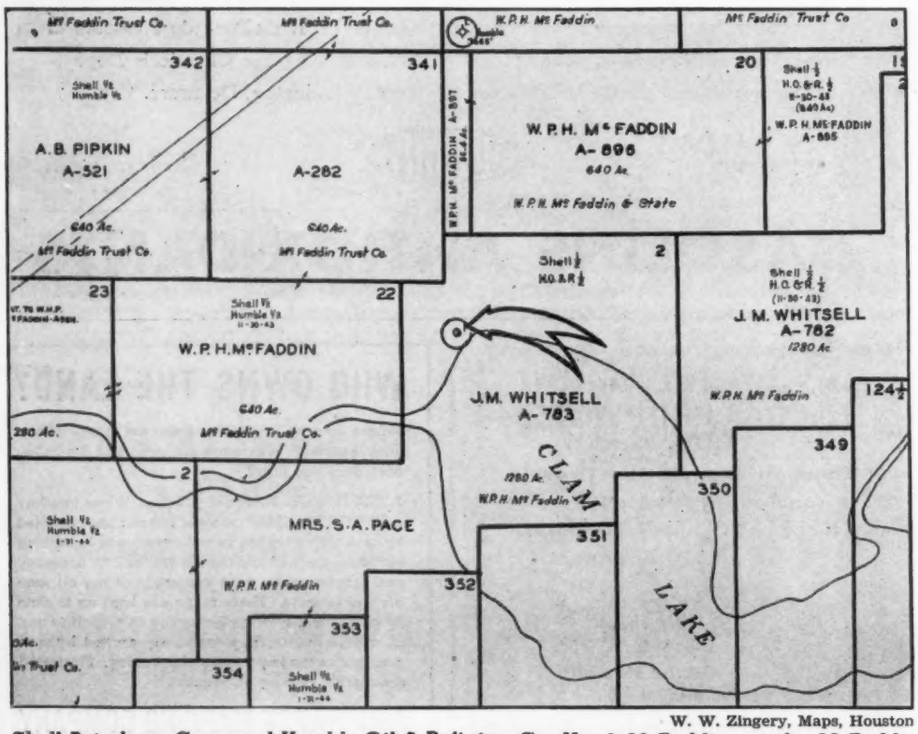
A new oil field was expected for the Louisiana Gulf Coast, as Gulf Oil Corp. No. 1 State, in section 17-19s-17e, in the Quarantine Bay area, Plaquemines Parish, found additional showings at 8,144-75 feet and the hole is being washed after screen and liner had been set. This well has been looked upon as a pool opener for several weeks having tested 1,500 feet of pipe line oil on a 12-minute drill stem test at 8,127-44 feet.

Shell Petroleum Corp. added another deeper producer for the Gibson field, Terrebonne Parish, with the completion of No. 3-B Realty, in section 18-17s-15e, which flowed 932 bbls. per day through a quarter-inch choke from a total depth of 9,500 feet.

In the North Crowley field, Acadia Parish, Humble Oil & Refining Co. had two wells drilling below the discovery horizon with no shows reported. In section 4, No. 1 Laumbrecht is drilling in shale at 8,785 feet while No. 1 Habetz is in shale below 8,400 feet. The discovery horizon is 8,100 feet.

In South Jennings, Jefferson Davis Parish, Loffland Brothers reperforated casing at 8,870-75 feet in No. 1 Fontenot, and the hole is being washed. This is expected to open the first production for this distillate

(Continued on Page 98)



W. W. Zingery, Maps, Houston

Shell Petroleum Corp. and Humble Oil & Refining Co. No. 1 McFaddin, on the McFaddin Beach Prospect, along shoreline of Gulf of Mexico which is looked upon as a pool opener following a drill stem test that showed several hundred feet of oil

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Among Gulf Coast Drilling Contractors

Harry L. Edwards Drilling Co. has received contract from the Martex Oil Co. for a deep test in the Gillock area of the Dickinson field and a large rotary is being moved in. Two completions were marked up for Johnson & McCurdy and the Sinclair Prairie Oil Co. at the Lockridge and Damon Mound fields, and additional work is anticipated. In the meantime drilling operations continue at Hockley in Harris County on a wildcat being drilled for Stanolind Oil & Gas Co. Woodley Petroleum Co. No. 4 McMurtry at the Hardin field in Liberty County is being completed while at Hastings, one rig is running for Humble Oil & Refining Co.

H. J. DeArman is preparing to test his No. 1 Edmundson in the Sandy Point field, Brazoria County. It is 6,000 feet southeast of production and has shown salt water on two previous tests. In the Huffsmith area of Harris County his No. 1 Geiseke is drilling below 2,500 feet.

Cron & Gracey report nine active operations. At Lake Long in Lafourche Parish, Louisiana, Fohs Oil Co. No. 2 State has been plugged for a second completion attempt after a first test showed salt water. Another outfit is located in the Hackberry field for Stanolind Oil & Gas Co. Along the Texas coast, four rotaries are operating at Hastings for Stanolind Oil & Gas Co., one at Dickinson for the same company, while another is situated in the Flour Bluff field for Humble Oil & Refining Co.

Nicklos Drilling Co. received a contract from Pan American Production Co. for No. 15 Harang and the rig is being moved in. In the same field Nos. 14 and 15 Harang are drilling at 5,287 and 6,892 feet, respectively. In Jefferson Davis Parish, Continental Oil Co. No. 1 Faye is drilling below 8,850 feet.

Rutherford Drilling Co. has four rotaries operating in the Lower Gulf Coast district, all of which are projected deep tests. In the Van Vleck field one well is drilling below 9,300 feet and is scheduled to be drilled below 10,000 feet, while in the same county and located in the Buckeye field, United North & South Development Co. No. 1 Stoddard is drilling below 10,474 feet, one of the deepest holes drilled in that area. Another is located on the Riveria Beach Prospect in Kleberg County for Superior Oil Co., while in San Patricio County and midway between the Sinton and Taft field, Rutherford Drilling Co. and Tide Water Associated Oil Co. No. 1 W. T. George is drilling below 4,000 feet.

Glenn H. McCarthy is preparing to make a production test on Texas Co. No. 2 Pansy Yount, an outpost west of the Amelia field in Jefferson County. In the same county his No. 1 Hebert, located on the Cheek Prospect, has been spudded, while in Orange County his No. 1 Brown is below 4,000 feet. For the time being drilling operations have halted at Palacios on Sun Oil Co. No. 1 Bay Shore Farms, which is bottomed at 11,347 feet. Casing has been cemented on bottom and the hole is expected to be carried deeper.

Rowan Drilling Co. is rigging up in the Lissie area in Wharton County for Strake Petroleum Co. No. 1 Jennings, a projected 8,000-foot test. On the Danbury Dome, in Brazoria County, Rowan Drilling Co. joint operation with Shell Petroleum Corp. in drilling No. 2 Jamison resulted in an excellent shallow producer. Bottomed at 1,978 feet, the well flowed 320 bbls. of pipe line oil per day through a quarter-inch choke. This has already resulted in a revival of drilling activity for this old dome and more locations are expected to be made during the next few weeks. At the Venice dome, Plaquemines Parish, Tide Water Associated Oil Co. No. 4 Manhattan Fruit Co. is being completed after several new sands were found. Another outfit is on location at Fairbanks for Amerada Petroleum Corp. and Stanolind Oil & Gas Co.

Smith & McDannald are watching with interest the progress of their No. 1 Gaines, offsetting production in the deep Bay City field in Matagorda County. The hole is below 7,800 feet and coring will probably start this week. Nine other operations are reported at South Hastings, Louise, Jennings, Charenton and Dickinson fields for the Stanolind Oil & Gas Co., Pure Oil Co., Shell Petroleum Corp. and Pan American Production Co.

W. V. Bowles has spudded a wildcat located on the Hilje Prospect in Wharton County for the Texas Co. and has plugged back preparatory to sidetracking and redrilling his No. 1 Robertson, a wildcat in Victoria County, which has prospects of opening a new field. The hole was drilled to the Frio at a total depth of 6,121 feet and has been plugged above 5,100 feet, where it will be sidetracked. Favorable indications were found at 5,100 and 5,600 feet.

Additional showings of oil and gas continued to be cored at Union Sulphur Co. No. 1 Calcasieu National Bank, a wildcat in section 12-9s-6w, Jefferson Davis Parish. The hole is being carried deeper at 8,315 feet after sand with an oil odor was cored at 8,295-8,305 feet. Favorable showings have been ecountered at 8,022-57 feet and at 8,273-78 feet, but as yet no drill-stem tests have been attempted.

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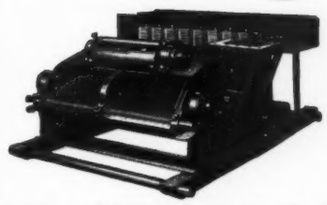

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By STAFF CORRESPONDENT

CLAY CITY TOWNSITE WELL FAILS TO FOLLOW THROUGH

MATTOON, Ill., Nov. 29.—Nine oil wells with a total initial production of 3,948 bbls., and eight wildcat dry holes comprised the record of the Illinois Basin fields in the past week.

Last week's promising looking test in Clay City, Vermilion Oil Co. No. 1 Duff, NE SE NE section 19-3n-8e, looked bad when this report was filed. Following the drill-stem test reported last week, in which 2,490 feet of oil rose in the pipe, the hole was swabbed and produced mud and a showing of oil. A still later swabbing test developed salt water and an oil showing. It was at a total depth of 3,046½ feet, with 7-inch casing set at 3,005 feet.

Near Completions

In Richland County Pure Oil Co. No. 1 J. L. Moore, NE NE NE section 23-3n-8e, set 7-inch pipe at 2,957 feet and cored at 2,960-63 feet, 2,966-70 feet and 2,984-87½ feet, the last a bleeding core of Dolomite.

Louis Godlin and others No. 1 Garrett, NW cor. SE SE SE section 8-3n-9e, had Roseclaire sand at 2,912 feet and set 7-inch casing at 2,941 feet, the total depth, and the crew was drilling plug.

Pure Oil Co. No. 2 Frost, SW SW SW section 9-3n-9e, had pay at 2,958-62 feet, and recovered tight bleeding Dolomite at 2,962-75 feet. Seven-inch casing was set at 2,932 feet and 2½-inch tubing run to 2,960 feet. The well swabbed 64 bbls. of oil in 24 hours and preparations were being made to acidize it.

Mammoth Producing & Refining Co. No. 5 Stanford-Heitz, SW NW NW section 34-4n-9e, total depth 3,032½ feet, was swabbed dry. It was treated with 1,500 gallons of acid loaded with a hole full of oil. It was swabbed down and will be reacidized. Seven-inch casing is set at 2,984 feet. Ypsilanti Oil Co. No. 1 Ansbrock, CNL NE NE section 17-3-9, was shut down at 2,910 feet, with an oil showing at 2,625 feet.

Mammoth Producing & Refining Co. No. 1 McCauley, SW SE NW section 28-3n-9e, in Richland County, was shut down at 3,146 feet, with no showing. Ste. Genevieve lime was topped at 3,135 feet.

Completed Wells

Carter Oil Co. No. 3 Watkins, NE NE SE section 33-4n-9e, Richland County, flowed 1,090 bbls. naturally in 24 hours on its completion test. It had Ste. Genevieve lime at 2,927 feet, oolitic lime at 2,998-3,008 feet and Dolomite at 3,008-18 feet, total depth. Five-inch casing had been set at 2,983 feet.

Ohio Oil Co. No. 6 Arbuthnot, NE NW NE section 8-3n-9e, Richland County, found McClosky sand at 2,950-67 feet, total depth 2,974 feet. It flowed 813 bbls. the first 24 hours. Seven-inch casing had been set at 2,930 feet.

DeKalb Syndicate and Lynn No. 1 Hanna and others, CWL SE SE SE section 8-3n-9e, Richland County, had pay at 2,943-53 feet, total depth, and set 7-inch casing at 2,942 feet. The well flowed 1,396 bbls. naturally, through casing, in 24 hours.

Graham & Duncan No. 6 Land Bank, SE SW NE section 8-2n-8e, Clay County, was acidized with 1,000 gallons, and then 2,500 gallons in pay at 2,986-95 feet. The well was put on the pump and made 200 bbls. of oil in 24 hours. Seven-inch casing had been set at 2,953 feet; total depth 3,000 feet.

Graham & Duncan No. 4 Land Bank, SW SE NE section 8-2n-8e, Clay County, set 7-inch casing at 2,977 feet; had pay at 2,996-3,006 feet, total depth 3,034 feet. It was acidized with 2,500 gallons, and flowed 150 bbls. of oil in 24 hours.

Benedum-Trees, Inc., finished a dry hole test in Wayne County, No. 1 Knapp A, NE NE NE section 12-1n-6e. It was abandoned at 3,314 feet, with no showings of oil. Ste. Genevieve lime was topped at 3,013 feet and Fredonia at 3,246 feet.

Washburn Petroleum Corp. No. 1-A W. J. Acola, NW NE NW section 31-2s-6e, was another Wayne County wildcat that failed. It was abandoned as dry at 3,042 feet. The hole filled with water at 2,905-3,034 feet.

A dry hole in Effingham County was Kingwood Oil Co. and others No. 1 Bartel, C W half NW NE section 26-6n-5e, which was bottomed at 4,102 feet. Devonian limestone was topped at 3,995 feet. The well had no oil showings.

J. Garfield Buell and others have a dry hole in their Hamilton County test, No. 1 Leach, SE SE SW section 22-3s-7e. It had a small showing of oil in the McClosky sand at 3,429-35 feet, and was drilled to 3,499 feet.

The deep test of J. H. Forrester, No. 1 fee, C W half SW NW section 5-6s-1w, was abandoned as dry at 5,256 feet. It topped St. Peter sand, the Wilcox sand of Oklahoma, at 5,136 feet.

Santa Fe Oil Co. completed No. 2 Robbins, NW cor. SE SE section 5-1n-3w, in sand at 972-92 feet, which was shot with 30 quarts. The well pumped 122 bbls. of oil the first 24 hours.

Bartelso Oil Co. No. 3 Schlorman, NW SE SE section 5-1n-3w, Clinton County, made an 82-bbl. initial production on the pump, following a 30-quart shot in sand at 979-94 feet.

Alexander and others No. 2 Allison, NW SW SW section 33-4n-1e, Marion County, was dry and abandoned at 1,477 feet. It had been given a 15-quart shot at 1,471-75 feet.

Adams Oil & Gas Co. No. 15 Merryman, CSL N half SW section 21-4n-1e, Marion County, pumped 65 bbls. the first 24 hours, following a 15-quart shot at 1,120-26 feet.

J. I. Staley No. 1 Carter, CSL SE NE section 28-4n-1e, Marion County, is a 30-bbl. pumper from sand at 1,435-48 feet, which had not been shot.

Shell Petroleum Corp. No. 1 Latz, SW NE NE section 18-3n-1e, a wildcat in Marion County was dry and abandoned at 1,706 feet. McClosky sand was topped at 1,666 feet.

T. M. Connery and others No. 1 Thalman Estate, NW cor. NW NW SE section 9-3n-1e, was dry and abandoned at 1,728 feet. It topped Ste. Genevieve limestone at 1,618 feet.

In the Producing Counties

In Clinton County, W. C. McBride, Inc., was drilling at 703 feet in No. 1 F. Schulte, SW SW NE section 3-2n-4e. Schlosberg & Sigel were drilling at 925 feet in No. 1 Monken, NE cor. SW SW section 4-2n-1w. The hole filled with water at 770-878 feet.

In Marion County, Adams Oil & Gas Co. spudded No. 17 Merryman, SW SE SW section 21-4n-1e. Bonnie Oil Co. No. 1 Daniels, NW cor. NE NW SE section 18-2n-4e, a wildcat, was coring at 2,630 feet, after topping Ste. Genevieve limestone at 2,615 feet. R. E. Dalton No. 1 Clifton, NE cor. SE SW section 15-1n-4e, was shut down at 483 feet, awaiting the arrival of a boiler. Alexander and others have derrick up for No. 1 Pope, NE cor. section 5-3n-1e.

In Clay County, Bonnie Oil Co. No. 1 Schrantz, SW SE NE section 31-4n-8e, was drilling at 1,985 feet. Pure Oil Co. No. 1 B. W. Moseley, SE SE NW section 28-3n-8e, found Ste. Genevieve limestone at 2,908 feet, Roseclaire at 2,946 feet, pay at 2,964-90½ feet and tubing was being run. Seven-inch casing was set at 2,907 feet, total depth 3,012 feet. Pure Oil Co. No. 7 Charles Wilkins, SW SE SE section 28-3n-8e, had Weller sand at 2,624-40 feet and was drilling at 2,828 feet. Pure Oil Co. No. 4 Bechtel, NW SE NW section 33-3n-8e, had saturated Weller sand at 2,613-25 feet, and oil showings at 2,937 to 2,961 feet, total depth.

Pure Oil Co. No. 1 A. L. Moseley, SW NE NE section 33-3n-8e, is close to completion. It had Ste. Genevieve limestone at 2,912 feet and pay at 2,975-82 feet, which was shot with 30 quarts. The well swabbed 10 bbls. of net oil and was then acidized with 500 gallons. Tubing was being pulled. Total depth is 3,025 feet. Pure Oil Co. No. 3 Albert Travis, CSL N half NW section 33-3n-8e, set 10-inch casing at 223 feet and was drilling at 450 feet. C. H. & C. Oil Co. No. 1 Duff, and others, SW NW NE section 7-3n-8e, was at a total depth of 3,075 feet with 7-inch casing set at 3,014 feet. It topped Ste. Genevieve limestone at 2,965 feet and had light pay streaks at 3,013-17 feet. Seven-inch casing was set at 3,014 feet and plug was being drilled.

Pure Oil Co. No. 1 Schrugham, SW NE NW section 27-3n-8e, was drilling at 840 feet. Southern Illinois Petroleum Co. was shut down at 2,316 feet in No. 1 Nodacker, NW SE SW section 23-3n-7e. Pure Oil Co. No. 3 Schrugham, NW SW NW section 9-2n-8e, was at a total depth of 3,025 feet after having found top of the Ste. Genevieve limestone at 2,943 feet, Roseclaire at 2,965 feet and a light pay at 3,006-09½ feet. Same company's No. 2 Hubble, NW SE SE section 8-2n-8e, was acidized with 500 gallons and then with 1,000 gallons at a total depth of 3,043 feet and swabbed 74 bbls. of net oil in 15 hours. Pay was topped at 3,032 feet. Pure Oil Co. No. 2 Leon Clark, SE NW SE section 8-2n-8e, was drilling at 2,665 feet, with Cypress topped at 2,653 feet, and Weller at 2,656 feet. Same company's No. 1 Leon Clark, NE NE NW SE section 8-2n-8e, had pay at 3,027-30 feet, total depth 3,037 feet, and swabbed 46 bbls. of oil in 27 hours. It was acidized with 500 gallons and swabbed and flowed 57 bbls. net oil in 11 hours. Testing continued.

In Wayne County, Gordon and others were moving in material at No. 1 Taylor, NW SW SW section 5-1n-7e; Duncan Bros. No. 3 Riggs, C W half NE SE section 27-2n-8e, drilling at 1,425 feet; Benedum-Trees, Inc., No. 1 Rosa Yates, SW NW SE section 33-2n-7e, drilling at 2,690 feet; Godlin & Hoffman No. 1 Riggs, NW SW SE section 27-2n-8e, derrick up; Pure Oil Co. No. 1-A Gill, SW NE NE section 27-2n-8e, rigging up rotary.

In Busy Richland County

In Richland County, Lee Parker and others No. 1 Berry, SE SW NE section 22-2n-14w, (measuring from Indiana central meridian) was drilling below 100 feet; Wiser Oil Co. No. 1 Travette & Mattis, CNL NE SE section 8-2n-10e, drilling at 2,610 feet; Ohio Oil Co. No. 7 Arbuthnot, SW NW NE section 8-3n-9e, rigging up rotary; Pure Oil Co. No. 1 Francis Coen, C W half SE NE section 8-3n-9e, drilling at 560 feet; Pure Oil Co. No. 1 J. L. Fleming A, NE cor. SW SE SE section 8-3n-9e, drilling at 1,745 feet; Pure Oil Co. No. 1 Ida Shafer, CNL SE SE SE section 8-3n-9e, drilling at 1,245 feet; Kapshull No. 1 Engle Patterson, NE NW NW section 16-3n-9e, drilling at 1,870 feet; Max Pray No. 1 Bahr, NW cor. SE NW section 16-3n-9e, total depth 2,972 feet, 7-inch casing set at 2,948 feet, rigging up standard tools. Southern Illinois Petroleum Co. No. 2 Allard, SE NW NW section 16-3n-9e, set 7-inch casing at 2,942 feet and shut down; DeKalb Syndicate No. 1 Sonner, NW cor. SE NE section 17-3n-9e, drilling at 2,020 feet; Godlin & Hoffman No. 1 Shannon, CEL SE NE section 17-3n-9e, drilling at 2,880 feet; Morris & German No. 1 Montgomery, CNL NW NE NE section 17-3n-9e, drilling at 632 feet; Carter Oil Co. No. 4 Watkins, SW SW SW section 34-4n-9e, building derrick; Kingwood Oil Co. and McMahon No. 1 Negley, NW NW SE section 31-5n-9e, rigging up rotary; Ypsilanti Oil Co. No. 1 Russell & Ring, NW cor. SW NW section 16-3n-9e, derrick up; Carter Oil Co. No. 5 Watkins, SE SE SE section 33-4n-9e, cellar and pits; Pure Oil Co. No. 1 Shannon, NW cor. SW SE SE section 8-3n-9e, derrick up; Pure Oil Co. No. 2 J. O. Coen, C W half SW SW section 4-3n-9e, cellar and pits; Julius Livingston No. 1 McDowell, NE cor. SE SE SE section 8-3n-9e, derrick up.

(Continued on Page 75)

Oklahoma Operations

By
DAL DALRYMPLE

WILDCAT IN LOGAN COUNTY WILL TEST SHOW IN WILCOX

Oklahoma wildcats and deep tests on the whole offered little to enthuse over the past week, but a wildcat in Logan County gave promise of being a possible pool opener. It was the Texas Co. No. 1 Roper, C W half SW SE section 22-15-1e, in the southeastern part of the county and north of Luther. It was reported showing oil and gas on Schlumberger test in Wilcox sand topped at 5,446 feet, total depth 5,458 feet. On the strength of the showing, operators set 7-inch casing at 5,449 feet and was to test production possibilities.

The deep test nearing completion in the Fox field of Carter County at Gulf Oil Corp. No. 1 Johnson, C SW NW section 27-2s-3w, refused to flow after being washed with oil and water, and was shut down at 7,909 feet, total depth, awaiting decision of operators to acidize or drill deeper. Its companion well, same operator's No. 1 Smith, C SW SW section 26-2s-3w, was coring below 7,703 feet, with oil and gas showing in cores.

Phillips Petroleum Co. No. 1 Becker, NE NW SW section 8-5-10, wildcat near Calvin in southern Hughes County, cored from 4,495 feet to 4,499 feet, had an odor of oil in cores, and was drilling ahead. It showed for a small producer in Cromwell sand at 4,398-4,465 feet, but operators decided to deepen to Wilcox sand.

Olson Drilling Co. and Ed Parsons No. 1 Blake, SW SW NW section 22-2n-8w, wildcat west of Marlow in Stephens County, was plugging back from 6,002 feet to about 4,900 feet, where it was thought to be good for 50 bbls. of oil daily. The deep test being drilled in Grady County by the Gulf Oil Corp. at No. 1 Thomas, SW NW NW section 14-4n-5w, was bottomed at 9,142 feet and was cleaning out cavings.

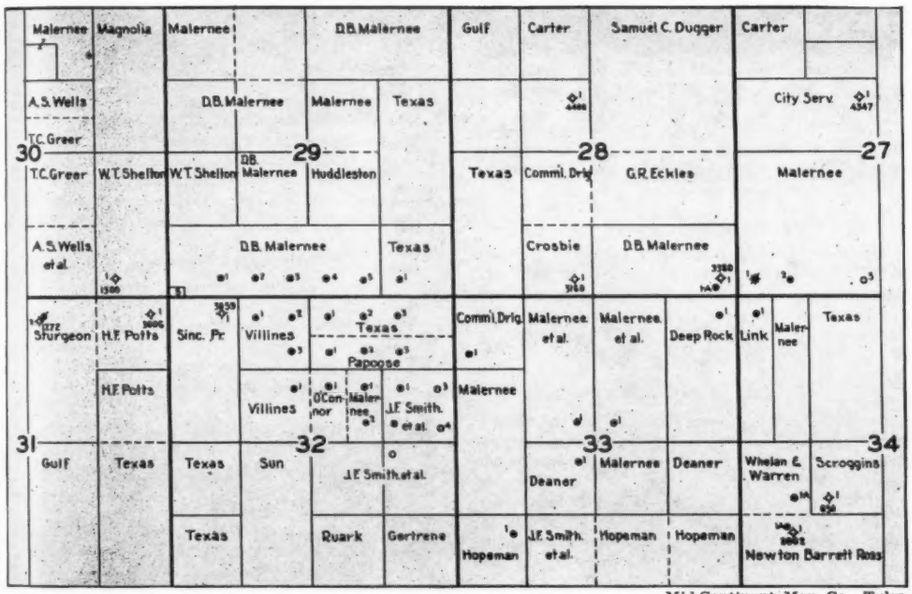
Another producer in the Langston pool of Logan County was near completion at Sinclair Prairie Oil Co. No. 1 Smith, NW SW SE section 12-17-1w, which flowed 155 bbls. of oil in two heads in nine hours while cleaning out to 5,100 feet, total depth. Operators were preparing to test for potential.

The Dora pool of southern Seminole County was extended one-half mile southeast at J. F. Smith No. 1 Harryman, NE SW SW section 33-7-6, which produced 60 bbls. of oil in 12 hours, with 1,500,000 feet of gas. It had Boggy sand at 2,820-44 feet.

December allowable production for Oklahoma was set at 550,000 bbls. of oil daily by the corporation commission. This is 38,800 bbls. daily less than the Bureau of Mines estimate and is a decrease of 25,000 bbls. daily from the November allowable.

Wildcat Activity

A pool opener was completed in southern Seminole County at Stanolind Oil & Gas Co., Amerada Petroleum Corp. and Mid-Continent Petroleum Corp. No. 1 Salina, SE NE NW section 4-5-6. After stopping at 3,317 feet, total depth, it swabbed 23 bbls. of oil and 116 bbls. of sulfur water, and was plugged back to 3,214 feet. It then was shot and acidized and pumped 90 bbls. of oil and 15 bbls. of water in 20 hours on completion test. The oil was 37-gravity. Production was from Hunton lime topped at 2,990 feet. Calvin sand was topped at 1,564 feet, Senora 1,778 feet, Cromwell 2,228 feet, Mayes 2,600 feet, Sylvan 3,040 feet, Viola 3,170 feet, Dense 3,220 feet, Dolomite 3,284 feet.



Mid-Continent Map Co., Tulsa

The Dora pool in sections 29, 32 and 33-7n-6e, one of the more active oil areas in Seminole County, was extended southeast the past week

Carter Oil Co. No. 1 Potts, C E half SE NE section 36-1n-3w, wildcat in Garvin County, was dry and abandoned at 4,155 feet, total depth.

John Koberg No. 1 Harms, NW NW NE section 6-10-16w, Washita County wildcat, was dry and abandoned at 4,190 feet, total depth.

J. W. Amyx No. 1 Ash, SE cor. section 7-4s-10w, Cotton County wildcat, was dry and abandoned at 1,263 feet, total depth.

Jack Cohen No. 1 Pierce, NE NE NW section 24-2s-6w, wildcat in Stephens County, was dry and abandoned at 1,877 feet, total depth.

E. M. Boring and others No. 1 Sullivan, SE SE SW section 6-5s-1e, Carter County wildcat, failed to find production and was abandoned at 2,508 feet, total depth.

Work was due to start at a new Pontotoc County wildcat at H. Riddle and others No. 1 fee, NW SW SE section 11-3n-5e, southwest of Ada. It is to be a 4,500-foot test, drilled on subsurface structure with a graben said to be present. Shell Petroleum Corp. is supporting the test.

E. J. Shaffer and associates No. 1 Rudolph, NE NE SW section 27-29-1w, had dug cellar, and F. S. Freeland and others No. 1-A Watson, NE NW NW section 28-28-1w, had rig on ground. Both were wildcats in Kay County.

Seminole County

J. F. Smith No. 2 Norvell, SW SE NE section 32-7-6, on the south side of the Dora pool, Seminole County, was bottomed at 2,980 feet in Boggy sand, flowed 512 bbls. of oil through casing in the first 24 hours after a shot, and flowed 493 bbls. in the next 24 hours, completed.

Amerada Petroleum Corp. and others No. 4 Riddle, SW NW NE section 2-10-5, North Earlsboro pool, had Wilcox sand at 4,629 feet, total depth 4,635 feet, swabbed 392 bbls. of oil in 10½ hours and was completed as an estimated 888-bbl. well.

Deep Rock Oil Corp. and Atlantic Refining Co. No. 4 Coody, SW NE SW section 9-9-7, was dry and abandoned at 3,614 feet, total depth.

Francis Oil & Gas Co. No. 2 Cravens, SW SE SW section 13-5-5, Wetley pool, had Hunton lime at 2,310 feet, Sylvan shale 2,505 feet, total depth 2,506 feet, was acidized and flowed 60 bbls. of oil in 24 hours, net.

W. A. Delaney No. 2 Reed, NE SW SW section 12-5-7, Allen area, topped first Wilcox sand at 4,190 feet, second sand 4,279 feet, was bottomed at 4,295 feet in sand, and pumped 240 bbls. of oil in 24 hours.

Stanolind Oil & Gas Co. and Amerada Petroleum Corp. No. 2 Cully B, NE NW SW section 12-5-7, swabbed 76 bbls. of oil in 10 hours, was acidized and pumped 226 bbls. in 24 hours. Top of first Wilcox sand was 4,161 feet, second Wilcox sand 4,245 feet, total depth 4,318 feet.

Pure Oil Co. No. 6 Reed, SW NE SW section 14-8-6, an old well, was deepened from 4,334 feet to 4,365 feet in first Wilcox sand topped at 4,315 feet, pumped 175 bbls. of oil in 24 hours and was recompleted.

Crusaders Petroleum, Inc., No. 2 Stump, NW SE SW section 27-8-8, an old well, was plugged back from 4,234 feet to 4,160 feet, shot and acidized and flowed 376 bbls. of oil net in 24 hours, recompleted. Hunton lime was topped at 3,955 feet.

Same operators' No. 5 Stump, SE SE SW section 27-8-8, was plugged back from 4,194 feet to 4,035 feet, shot and acidized, and flowed 291 bbls. of oil net, through tubing, in 24 hours, recompleted.

Mid-Continent Petroleum Corp. No. 16 Fleet, SW SE SE section 7-5-8, an old well, bottomed at 4,220 feet, plugged back to 4,180 feet, increased production from 3 bbls. daily to 17 bbls. by shooting, and was to be acidized.

New work in Seminole County: Sinclair Prairie Oil Co. No. 1 Baker, NE SE SE section 29-10-8, cellar and pits; Bryon Petroleum Co. No. 1 Walker A, SW NE SE section 4-7-8, location; J. F. Smith and others No. 1 Austin, NW NE SE section 32-7-6, spudded.

Pontotoc County

Sinclair Prairie Oil Co. No. 5 Vivian, SW NW NW section 22-2n-7, Fitts district, Pontotoc County, topped Hunton lime at 3,888 feet, was bottomed at 3,900 feet, and made potential of 493 bbls. of oil, with 400,000 feet of gas, completed.

Magnolia Petroleum Co. No. 9 Woolley, SE cor. section 21-2-7, found Cromwell sand at 2,580 feet, total depth 2,625 feet, and swabbed 309 bbls. of oil in 24 hours through casing.

Continental Oil Co. No. 1 Brown, NE NE NW section 11-1n-7, Jesse sector, topped Viola lime at 4,284 feet, Bromide 4,490 feet, total depth 4,616 feet, where water intruded, and plugged back to 4,292 feet. After shoot-

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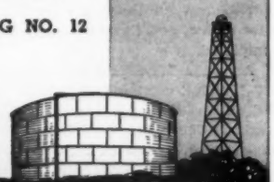

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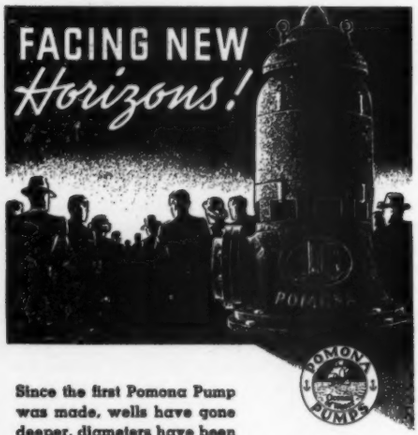

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ing and acidizing several times, it swabbed 46 bbls. of oil net in 24 hours and was completed for potential of 36 bbls.

Clark & Cowden No. 1 Montpelier, NE SW SE section 20-2n-6, topped Cromwell sand at 2,850 feet, total depth 2,986 feet, swabbed 59 bbls. of oil in 24 hours, pumped 45 bbls. in 24 hours and was completed.

Benedum-Trees Oil Co. No. 2 Burke, NW cor. section 33-5-5, an old well in the Bebee district, was deepened from 2,310 feet to 2,592 feet, where the hole filled with water, plugged back to 2,582 feet, pumped 6 bbls. of oil in 24 hours and was recompleted.

Mary F. Oil Co. and W. A. Delaney No. 1-A Harris, NW SE SE section 29-5-8, was dry and abandoned at 860 feet, total depth, in shale.

J. D. Campbell No. 1 Scrivner, SW SE SW section 15-2n-7e, had spudded with machine, was to set surface pipe and rig up rotary.

Coal County

Continental Oil Co. No. 1 Wade, C E half NW NW section 7-1n-8, Coal County extension of the Jesse area, topped Hunton lime at 3,729 feet, Sylvan shale 4,052 feet, total depth 4,054 feet, was acidized, flowed 674 bbls. of oil gross through tubing in 5½ hours and 217 bbls. net in 7 hours, with 800,000 feet of gas. Potential was estimated at 744 bbls. of oil.

Choctaw Oil & Gas Co. No. 1 Johnson, C W half NE NW section 7-1n-8, and same company's No. 2 Johnson, C E half NE NW section 7-1n-8, were locations.

Lincoln County

Wilcox Oil & Gas Co. No. 5 Sac and Fox, SW NE SW section 15-14-6, Lincoln County, had Prue sand at 2,925 feet, total depth 2,990 feet, was shot and flowed 300 bbls. of oil in the first 24 hours; later, flowed 100 bbls. daily and was completed.

Summitt Drilling Co. No. 1 Nickell, NW NW NE section 2-14-2e, found Wilcox sand at 5,065 feet, total depth 5,074 feet, was shot and made potential of 182 bbls. of oil, cutting 2 per cent water. Gas gauged 750,000 feet.

Helmerich & Payne No. 1 Fitch, SW SW NE section 15-14-6, found Prue sand at 2,902 feet, total depth 3,006 feet, and flowed 90 bbls. of oil daily, with 1,500,000 feet of gas.

Sun Oil Co. No. 5 Arinwine, NW SE SE section 35-15-2e, and Stanolind Oil & Gas Co. and Amerada Petroleum Corp. and others No. 4 Arinwine, SW NE SE section 35-15-2e, were locations.

Hughes County

Shepard & Thomas No. 1 Ball, NE SW SE section 12-7-8, Hughes County, had sand at 1,004 feet, total depth 1,037 feet, and pumped 20 bbls. of 29-gravity oil and 4 bbls. of water in 24 hours, completed.

Power Oil Co. No. 1 Cox, NW NW NE section 21-9-9, had machine on ground.

Oklahoma County

Ohio Oil Co. No. 4 Messer, NE SW SW section 32-14-3w, Edmond pool, Oklahoma County, topped first Wilcox sand at 6,640 feet, second Wilcox sand 6,690 feet, was bottomed at 6,702 feet, and made potential of 687 bbls. of 38.5-gravity oil, with 711,000 feet of gas.

Clark & Co. No. 1 Pierson, SW NE SW section 15-12-3w, in the new play at the northwest extension of the Capitol area of the Oklahoma City field, was digging cellar and pits.

Noble County

Phillips Petroleum Co. and Shell Petroleum Corp. No. 1-A Harbison, NW NW SW section 22-23-2w, was location for a new test in the Billings area, Noble County.

Creek County

A. W. Swift and associates No. 2 Patrisic, SE NW SW section 12-19-9, Creek County, had Cleveland sand at 1,154 feet, lower Cleveland 1,197 feet, total depth 1,203 feet, flowed 25 bbls. of oil daily and produced 1,000,000 feet of gas, completed.

Horton and others No. 1 McGuire, NE NW SE section 19-19-9, had Red Fork sand at 2,442 feet, total depth 2,473 feet, and pumped 45 bbls. of oil daily.

Big Four Petroleum Co. No. 3 Cubbie, SW SE SW section 19-17-8, had Bruner sand at 1,050 feet, was bottomed at 1,070 feet and produced 3,000,000 feet of gas.

L. O. Shannon and others No. 1-A Collyer, SE NW SE section 33-17-7, lost tools in hole at 1,047 feet, total depth, and was abandoned.

L. B. Jackson No. 2 Carman, NW NW SW section 36-18-8, was dry and abandoned at 1,648 feet, total depth.

Same operator's No. 1 Streeter, NW NW NE section 25-18-9, had Arbuckle lime at 3,299-3,353 feet, total depth, water intruded; it was plugged back to 3,016 feet and shot, but was dry and abandoned.

Sinclair Prairie Oil Co. No. 1 Whitmore, SW SW SE section 24-18-9, had a hole full of water at 3,033 feet, total depth, and was abandoned at 3,035 feet, total depth.

Johnson Oil Refining Co. No. 1 Patrisic, NW SW SW section 12-19-9, was dry and abandoned at 1,235 feet, total depth.

New work in Creek County: Link Oil Co. No. 9 Jones, CNL S half NE section 32-18-7, an old well being deepened, was fishing for tubing; Jordan Oil Co. No. 1 Smith, NW SE NW section 13-17-8, drilling at 685 feet; L. B. Jackson No. 9 Bear, NE SE SE section 35-18-8, spudded; same operator's No. 2 Alberta, NW NE NW section 25-18-9, rigging up standard tools; H. D. Daniels No. 2 Riley, SW SW NE section 24-18-10, machine; Carpenter & Houser No. 2 Burgess, SE NE SE section 25-18-10, building rig; J. B. Grieves No. 2 Rentie, NW SE SE section 32-19-9, an old well deepened from 2,983 feet to Arbuckle lime at 3,247-50 feet, total depth, flowed 68 bbls. of oil in 12 hours and was preparing to run 5-inch casing; Dixie Oil & Gas Co. No. 1-A Lumm, SW SW NE section 8-14-8, spudded; Louis Stekoll No. 1 Walker, SW NE NE section 32-14-10, location; Comail Oil Co. and others No. 1 Coppedge, NE NE SW section 1-15-7, rig.

Estimated Daily Production

Estimated daily production of Oklahoma for the week ending November 27 and for the preceding week was as follows:

	Barrels	
	Nov. 27	Nov. 20
Allen	5,600	5,525
Billings	7,400	7,400
Burbank	7,925	7,925
South Burbank	14,350	14,225
Balance Osage	19,500	19,500
Blackwell district	4,775	4,750
Bristow-Slick	7,275	7,200
Chandler	2,825	2,850
Crescent	9,825	7,550
Cromwell	3,250	3,425
Cushing-Shamrock	10,825	10,800
Duncan district	3,800	3,950
Edmond	11,800	11,500
Fish	5,025	5,475
Fitts	80,250	80,850
Jesse	3,650	3,900
Graham	4,325	4,400
Gray	1,250	1,275
Healdton	9,975	10,025
Hewitt	4,100	4,325
Holdenville	850	850
Keokuk	7,750	7,925
Konawa	1,525	1,500
Lucien	13,650	13,650
Moore	9,800	9,400
Oklahoma City	125,575	148,900
Olympic	9,050	9,225
Polo	825	800
Sasakwa and townsite	2,525	2,525
Sholem-Alechem	3,100	2,975
Seminole:		
Bowlegs	10,950	10,975
Carr City	5,025	5,125
Earlsboro	5,875	5,925
South Earlsboro	675	650
East Earlsboro	6,650	6,800
Little River	9,075	9,250
East Little River	1,075	1,100
Maud	625	600
Mission	1,925	1,950
Seminole	9,200	9,350
East Seminole	1,950	2,150
Searight	3,925	3,900
Total Seminole	56,950	57,775
St. Louis-Pearson	19,350	19,400
Tatums	5,950	5,975
Tonkawa-Garber-Thomas	4,550	4,525
Wewoka	2,675	2,725
Yale-Jennings	4,025	4,075
Other pools	81,950	80,950
Total Oklahoma	567,825	590,025

Tulsa County

Downing and others No. 1 Call, NE SE SW section 30-17-14, Tulsa County, was dry and abandoned at 1,502 feet, total depth.

The following wells were completed in the Tulsa Airport pool over a period of several weeks:

S. A. Moore No. 1 Cummings, NW NW NE NE section 2-19-13, dry and abandoned at 1,025 feet, total depth.

Aitcheson-Pearson No. 1 Peterson, N half NE NE NE section 3-19-13, total depth 1,100 feet, dry and abandoned.

Meadors No. 1 Mansfield, NW NW NE NE section 3-19-13, total depth 1,033 feet, dry and abandoned.

Sellars No. 1 Carl, Lot 6, Block 2, Greenlawn Addition, section 3-19-13, dry and abandoned at 1,100 feet, total depth.

Border & Blount No. 1 Tidwell, NW SE SE SE section 34-20-13, total depth 1,102 feet, pumped 15 bbls. of oil daily.

Stephens No. 1 fee, NE NE SE SE SE section 24-

20-13, pumped 35 bbls. of oil daily at 1,098 feet, total depth. Top of Bartlesville sand was 1,080 feet.

Gubser & Marshall No. 4 Gubser, NE NW SE NW section 35-20-13, pumped 35 bbls. of oil daily at 1,104 feet, total depth.

Pitts and others No. 1 Nichols, CWL SE SE section 35-20-13, dry and abandoned at 1,105 feet, total depth.

Pitts & Lee No. 4 Weaver, SW NW SW section 35-20-13, total depth 1,085 feet, pumped 25 bbls. of oil daily.

Kay County

L. H. Wentz No. 3 Andrews, NW SW NE section 8-28-1w, Braman area, Kay County, had Wilcox sand at 3,513 feet, was bottomed at 3,530 feet, and pumped and flowed 165 bbls. of oil in 24 hours, completed.

Muskogee County

Oklahoma Oil Co. No. 1 Hart, S half NE SW section 5-15-15, Muskogee County, had sand at 1,594 feet, total depth 1,669 feet, and pumped 5 bbls. of oil daily, completed.

Garvin County

Cox & Hamon No. 1 Matheny, NW SW SW section 32-1n-3w, Tussy pool, Garvin County, had Tatum sand at 3,250 feet, total depth 3,365 feet, pumped 176 bbls. of oil daily and was completed.

J. Leidermann No. 1 Snow, NE SW SW section 32-1n-3w, found sand series at 3,122 feet, total depth 3,315 feet, plugged back to 3,291 feet and produced 232 bbls. of oil daily.

Otto Schulz No. 1 Helm, SE SW SW section 32-1n-3w, had Deese series at 3,217 feet, total depth 3,446 feet, and produced 162 bbls. of oil daily.

Cox & Hamon No. 1 Cole, SW cor. section 32-1n-3w, had Tussy sand at 3,280 feet, in Deese formation, was bottomed at 3,525 feet, plugged back to 3,325 feet, and pumped 95 bbls. of 25-gravity oil daily.

Skelly Oil Co. No. 3 Hinkle, SE NW SW section 32-1n-3w, had first pay in Tussy sand at 2,960 feet, was bottomed at 3,205 feet, and pumped 59 bbls. of 25-gravity oil daily.

Okmulgee County

Royal Oil & Gas Co. No. 7 Johnson, N half NE NE section 29-15-14, Okmulgee County, had sand at 1,612 feet, total depth 1,680 feet, pumped 7 bbls. of oil daily, completed.

Lease Investment Co. No. 4 Reneau, NE SW NW section 4-13-11, had Wilcox sand at 3,158 feet, was bottomed at 3,190 feet and produced 240 bbls. of oil daily.

Stephens County

G. L. Pace and others No. 14 Allen, NW SE SE NE section 3-2s-8w, Empire field, Stephens County, was completed as a 480-bbl. well in sand at 2,202-05 feet, total depth.

Magnolia Petroleum Co. No. 13 Cooks, NE NW SW section 20-1n-8w, was dry and abandoned at 1,435 feet, total depth.

Gulf Oil Corp. No. 13 Sims, NE SW SW section 13-2s-4w, was a machine. Carl Kiester No. 1-B Jones, SW SW SE section 23-1s-5w, was a location.

Jefferson County

Farlyn Oil Co. No. 56 Seay, SE SE SW section 3-7s-5w, Oscar-Seay area, Jefferson County, was bottomed at 1,271 feet and pumped 47 bbls. of 34-gravity oil from Hoxbar formation, Oscar sands, and was completed.

Same company's No. 58 Seay, NE SE SW section 3-7s-5w, was completed as a 69-bbl. pumper at 1,275 feet, total depth.

Farlyn Oil Co. No. 59 Seay, NE SE SW section 3-7s-5w, was bottomed at 1,097 feet, and pumped 44 bbls. of oil daily.

Bridwell Oil Co. No. 8 Seay, NE NE NW section 10-7s-5w, was bottomed at 1,262 feet in sand, and pumped 15 bbls. of oil and 45 bbls. of water daily.

Hubble & Wilson No. 1-A Trout, SE SE SW section 19-6s-5w, was dry and abandoned at 2,040 feet, total depth.

Carter County

Pure Oil Co. No. 41 McCoy, NE NE NW section 23-4s-3w, Healdton field, Carter County, was bottomed at 1,301 feet, plugged back to 1,232 feet, and pumped 6 bbls. of 31-gravity oil in 8 hours, completed.

Tuesday Oil Co. No. 1 Williams, NW cor. section 5-1s-3w, had Tatum sand at 3,250 feet, total depth 3,425 feet, and produced 40 bbls. of oil daily.

Shell Petroleum Corp. No. 16 Hapgood, N half SW SE SW section 3-4s-3w, had Healdton sand at 294 feet, was bottomed at 1,060 feet, and completed as a 15-bbl. oil well.

Carl Carter No. 1-A Harley, S half SW NE SW section 19-2s-3w, had Milroy sand at 900 feet, total depth 1,028 feet, and produced 2,500,000 feet of gas.

Magnolia Petroleum Co. No. 2 James, SE NE SW section 17-2s-2w, was completed as a 15-bbl. well at 2,800 feet, total depth.

Rockland Oil Co. No. 58 Sarasota, C NW NE section 23-4s-3w, had Healdton sand at 910-1,363 feet, total depth, and was completed as a 10-bbl. oil well.

Turman Oil Co. No. 14 Rexroat, NE SW NE SW section 10-4s-2w, Hewitt area, was dry and abandoned at 2,507 feet, total depth.

New work in Carter County: Magnolia Petroleum Co. No. 77 Richards, SW SW SE section 31-3s-3w, rigging up machine; Ideal Oil & Gas Co. No. 13 Scroggins, NW SE SE SE section 32-3s-3w, rigging up machine; Kewanee Oil & Gas Co. No. 37 Jones, SE SE NW section 4-4s-3w, an old well, rigging up to deepen.

Scattered New Work

In Caddo County, Magnolia Petroleum Co. No. 10 Niles, SW SW NW section 36-6n-10w, had dug cellar and pits.

In Grady County, T. H. McCasland No. 5 Horton, SW NE NW section 8-3n-5w, was a location.

In Comanche County, J. L. Replogle No. 1 Schull, C SW SW section 29-2n-10w, an old well, was rigging up machine to deepen.

In Kiowa County, Richardson-Letson No. 1 Pfenning, NW NW SW section 1-6n-17w, was a machine.

Central West Fields

(Continued from Page 72)

Outlying Counties

In Cumberland County, Jolly, Hill, Stipes and others No. 1 Jenkins, SE NE NE section 30-10n-9e, was drilling at 1,845 feet.

In Randolph County, Mabee Consolidated Corp. and Delaney No. 1 Wilson, NE SE NE section 3-4s-5w, was drilling at 2,495 feet.

In Christian County, Rogers Bros. and others No. 1 Johnston, NE SE SE section 36-15n-2w, was shut down at 1,349 feet to recondition mud. Parshall & Graham

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No. 1 Yockey, SW SW NE section 36-15n-2w, which had been drilled to 3,005 feet and plugged back to 1,964 feet, was given a 1,500-gallon acid treatment and tested only salt water with a show of oil. The crew was taking a fill-up test.

In Shelby County, English and others were coring at 2,370 feet in No. 1 McClory, SE SE NE section 14-10n-6e. Ste. Genevieve lime was topped at 2,257 feet. Richardson Bros. made a location for No. 1 Richardson, SW SW SW section 26-12n-4e.

In White County, Davis & Harrell No. 1 Poorman, NE NW NW section 5-4s-8e, had reached a depth of 3,379 feet, and the crew was coring ahead. Ste. Genevieve lime was topped at 3,379 feet.

In Wabash County, Martin and others spudded and shut down No. 1 W. R. Wood, NE SE SW section 31-1n-12w, (measuring from Indiana principal meridian).

In Hamilton County, Carpenter and others set 10-inch casing at 200 feet and were drilling at 530 feet in No. 1-A Clark, NW NW SW section 32-3s-5e.

In Montgomery County, Schlossberg & Sigel No. 1 Nieman, C SE SW section 29-8n-5w, was drilling at 589 feet.

In Fayette County, Benedum-Trees, Inc., No. 1 Van Zandt, SW SW SW section 24-6n-1w, (corrected ownership and farm name), found the base of Pennsylvanian at 1,125 feet, a sand at 1,445-75 feet and top of Ste. Genevieve lime at 1,520 feet, and was drilling at 1,587 feet. Carter Oil Co. had derrick up for No. 1 Clow, C E half SW NE section 15-8n-10e.

In Effingham County, Carter Oil Co. No. 1 Pruemer, C W half SW NE section 11-8n-7e, topped Ste. Genevieve lime at 2,515 feet and was shut down for water at 2,565 feet.

In Jasper County, Hoffman was rigging up rotary for No. 1 King, SW NW NW section 20-8n-10e.

In Lawrence County, Strauss and others No. 1 Robeson, NW SE NE section 16-3n-10w (measuring from Indiana principal meridian) was drilling at 2,914 feet, in shale.

In Edwards County, Leach Bros. No. 1 H. D. Lee SW NE SE section 11-1s-10e, was rerunning 6⅝-inch casing, total depth 2,750 feet.

In Jefferson County, Carter Oil Co. No. 1 Tate, C W half NW NE section 10-1s-2e, was drilling at 3,770 feet. It had no showings of oil.

In Franklin County, Washburn Petroleum Co. No. 1 C. H. Neal, C E half SE SE section 6-5s-4e, set 15-inch casing at 40 feet and was shut down at 295 feet.

In Massac County, Kahle and others No. 1 Harvick, SW SW SW section 23-14s-3e, was coring with cable tools at 2,840 feet.

OHIO

FINDLAY, Ohio, Nov. 29.—Central Ohio operators completed 7 oil wells, 15 gas wells and 10 dry holes in the past week in review. A Clinton sand well in Knox County, good for 116 bbls. the first day after the shot, was the banner oil well of the week. The list of completed work follows:

In Athens County, Canaan Township, section 12, Speary Oil & Gas Co. drilled the No. 1 Carlos F. Dorr through the second Berea formation, 1,406-19 feet and has a gas well gauging 60,000 feet. In Carthage Township, section 3, A. D. Townsend No. 2 Fred Varner was drilled into the Keener formation, 1,225-35 feet, for a gas well gauging 900,000 feet, with a rock pressure of 350 pounds. In Rome Township, Fraction 24, Brooks Johnson completed No. 1 J. L. Winnar in Maxon sand. It is a gas well gauging 220,000 feet, with a 400-pound rock pressure. Maxon was at 1,917-54 feet.

In Gearnsey County, Cambridge Township, section 21, Cambridge Glass Co. on the L. R. Barrett farm drilled through the Berea formation and has a dry hole, total depth 1,362 feet. In Jefferson Township, section 8, Hayes Ferguson drilled No. 1 Wilbur Keith through the Gordon sand 1,548-52 feet. It is a dry hole. In the same township, section 3, George Kernodle drilled a dry hole to the Berea formation, No. 2 J. J. Lanning. Total depth was 1,250 feet. In the same township, section 15, Ronshausen and others completed No. 5 R. C. Gillespie for a Berea gas well gauging 70,000 feet. The Berea was at 1,203-04 feet.

In Knox County, Jackson Township, section 1, C. A. Davis and others completed No. 1 French Veatch, a Clinton oil well making 116 bbls. the first 24 hours after the shot. In Union Township, section 21, Upham Gas Co. drilled No. 1 John Schwartz through the Clinton sand at 3,065-3,113 feet. It swabbed 20 bbls. of oil the first 24 hours after shot.

In Lawrence County, Washington Township, section 12, Portage Producers, Inc. completed No. 2 Cambria Clay Products Co., a gas well in the Maxon sand at 795-800 feet, producing 50,000 feet. The well had a rock pressure of 225 pounds.

In Licking County, Franklin Township, Lot 4 in the third quarter, E. J. Edmonds drilled No. 1 Valentine Nymola through Berea sand which was dry. It was abandoned at 725 feet. In Maryann Township, Lot 23, first quarter, Hoover Brothers completed No. 1 Homer Wells in Berea at 601-09 feet. It is a 60,000-foot gas well.

In Meigs County, Chester Township, section 3, J. I. Clark had a show of gas in the Berea in No. 1 Allan H. Bailey. It was shot with no increase. The well was plugged. In Salisbury Township, section 32, Harry Smith No. 4 Athens-Pomeroy Coal & Land Co. is a gas well gauging 200,000 feet from the Maxon sand at 818-37 feet. In the same township, section 32, Ohio Fuel Gas Co. drilled No. 2 O. M. Wogan to the Maxon for a gas well gauging 187,000 feet naturally. The sand was at 835-50 feet.

In Monroe County, Franklin Township, section 21, Heisler Oil & Gas Co. No. 9 Walter Marsh had a show of oil and gas in the Injun sand which was shot and the gas was exhausted. The hole was plugged and abandoned at 1,640 feet.

In Muskingum County, Brush Creek Township, Hopewell Gas & Fuel Co. drilled No. 2 Warren Swingle through the Clinton. It is a dry hole, total depth 4,064 feet. In Jackson Township, section 8, Pure Oil Co. completed No. 1 Angie Fraser in the Clinton sand, 3,209-66 feet, for an oil well making 76 bbls. the first 24 hours after shot. In Washington Township, section 13, Wittmer Gas Co. completed No. 1 Frank McAllister, an oil and gas well in the Clinton at 3,749-68 feet, gauging 234,000 feet of gas and 1 bbl. of oil.

In Noble County, Elk Township, section 26, the Harriettsville Oil & Gas Co. No. 5 L. L. Lovett heirs, total depth 1,592 feet, was plugged and abandoned. No Berea sand was found.

In Perry County, Coal Township, section 33, Chartiers Oil Co. No. 217 Hocking Valley Products Co. was completed as a 45-bbl. oil well in the Clinton the first 24 hours after shot. The sand was at 3,438-62 feet.

In Scioto County, Jefferson Township, section 1, Earl McKenzie, on his own tract, completed a gas well in the Weir sand gauging 10,000 feet. The Weir sand was 300-60 feet.

In Stark County, Perry Township, section 16, the East Ohio Gas Co. completed the No. 1 Jacob Kropf in the Clinton formation. It is a gas well, shut in at 213,000 feet, rock pressure 1,130 pounds. The Clinton was at 4,587-4,608 feet.

In Summit County, Talmadge Township, Tract 3, Pawnee Corp. had a show of gas in the Clinton in No. 3 Board of County Commissioners tract. The sand was shot twice, but netted no increase in production. The hole was abandoned, total depth 4,119 feet.

In Washington County, Aurelius Township, section 30, Wickens and others drilled No. 24 Joseph A. Wickens through the Keener sand for a dry hole, total depth of 1,257 feet. In Ludlow Township, section 16, Newhart Oil & Gas Co. No. 5 B. W. Rinard was completed in the Berea sand as a combination well. It gauged 170,000 feet of gas and 2 bbls. of oil. The sand was from 1,725-31 feet. In Liberty Township, section 7, Myers and Burkhart drilled No. 1 John Riemenschneider heirs to the Maxon sand for an oil and gas well. It made 350,000 feet of gas and 30 bbls. of oil the first 24 hours after shot. However, it settled down to about a 10-bbl. producer. The Maxon was at 1,433-43 feet. In Warren Township, section 32, Anderson and others completed No. 5 Jacob M. Vickers, an oil well in the Stray sand at 1,266-72 feet. It made 4 bbls. the first 24 hours after shot.

In Wayne County, Milton Township, section 12, Ohio Salt Co., on its own property, drilled its No. 2 to the Clinton sand showing a small amount of gas. It was plugged. The Clinton was at 3,438-50 feet, total depth 3,500 feet.

EASTERN KENTUCKY

ASHLAND, Ky., Nov. 29.—For the first time in many weeks no completions are included in the report from the eastern Kentucky area.

Knott County

The Inland Gas Corp. is down 2,338 feet in No. 1 Mayo Craft, on Right Fork of Troublesome Creek in Knott County. The same firm had reached the 1,682-foot mark in Whittaker & Waddell No. 1 in same locality and is building rig for No. 2 J. C. Hopkins.

Martin County

The Kentucky-West Virginia Gas Co. is setting up machine for No. 560 Melissa Ward on Rockhouse Fork of Rockcastle, in Martin County. The same firm is fishing for pipe in No. 5,226 C. W. Preece on Coldwater Fork and is testing oil in No. 5,231, nearby. The same firm is on location of No. 5,232 and is down 295 feet in sand in No. 5,234 on the same land. Kentucky-West Virginia Gas Co. is grading location for No. 5,235 on C. W. Preece land on Peg Fork of Coldwater Fork.

Floyd County

The Kentucky-West Virginia Gas Co. is drilling at 2,030 feet, in Berea sand in No. 557 on the Ingram Stepp land on Johns Creek, Floyd County, and has moved to location for No. 565 on the same land. The same firm is moving to location of No. 566 Samuel Dillon on Ivy Creek of Levisa Fork. Kentucky-West Virginia was drilling at 1,525 feet, in Big Lime, in No. 5,229 John W. Woods, on Porter Branch and is on location for No. 5,233 John W. Burchett, on Cow Creek.

Magoffin County

Bed Rock Petroleum Co. has cased No. 13 on J. J. Prater land on Prater Fork of Mash Fork at 970 feet. The well is in the Burton Oil Springs district of Magoffin County.

Powell County

Mrs. Agatha Wireman was drilling at 650 feet in No. 22 on J. M. Townsend land on South Fork in the district of that name in Powell County.

Lawrence County

Kentucky Oil Producers No. 1 on John Rose land in the Keaton district of Lawrence County, is being cleaned out.

Lee County

C. E. Townsend, agent, is drilling at 900 feet in No. 13 Andrew Combs, on Billies Fork in the Big Sinking district of Lee County, and has reached 715 feet in No. 14 on the same land. McCown & Wissing was drilling at 580 feet in No. 7, also on the Combs land. Thomas Witmer is down 290 feet in No. 6 on the C. J. Tipton land in the same locality.

WESTERN KENTUCKY

OWENSBORO, Ky., Nov. 29.—One oil well and five dry holes were the sparse results of drilling in Western Kentucky in the past week, one of the least eventful weeks of the year in the field. Completions and new work follow:

Hancock County

Easton district: J. C. Ellis No. 22 Link Richards, spudding in. Little Tar Springs district: Galey & Fletcher No. 1 William West, spudding in. Indian Lake district: Galey & Fletcher No. 1 J. W. Holder, deep test, shut down at 1,760 feet. Adair district: Taylor Brothers No. 1 Harvey McDaniels, spudding in. Floral district: F. Damron and others No. 2 John Bruner, dry hole, 611½ feet. C. D. Walker and others No. 1 Fred Gray, rigging up.

Ohio County

Fordsville district: The Petroleum Co. No. 11 William B. Bellamy, drilling at 275 feet. Snowden & McSweeney No. 28 H. J. O'Dell, core drilled 29 feet of Jett sand for key well. Adaburg district: Hall & Booth No. 1 Tom Helm, drilling at 217 feet. Friendship Church district: E. DeHart and others No. 3 A. P. Kelly Heirs, dry hole, 650 feet. Taffy district: F. Randall and others No. 1 J. Funk, drilling at 225 feet. Taylor & Likens No. 3 Bartlett Heirs, dry hole, 458 feet. Beda district: Sunflower Oil & Gas Co. No. 1 C. O. Cooper, rigging up. Livermore district: Clark & Snyder No. 2 Louisville Joint Stock Land Bank, dry hole, total depth 1,475 feet.

McLean County

Livermore district: Joseph B. Mayers and others No. 2 John A. Rowan, dry hole, through Bethel sand, 1,323-40 feet; salt water in bottom. J. C. Miller, trustee, No. 1 J. S. Fitzhugh, rigging up. Island district: South Penn Oil Co. No. 1 Mrs. Rena Brown, deep test, shut down at 2,980 feet.

Webster County

Sebree district: Sellers & Koker No. 2 Froy Powell, 20 bbls., Niagara sand 416-36 feet, shot 20 quarts. I. B. Browning and others No. 6 J. R. Ramsey, deep test, shut down at 300 feet. Slaughters district: Imperial Oil & Gas Co. No. 1 Archibald Estate, deep test, fishing at 2,520 feet.

Daviess County

St. Joseph district: I. B. Browning and others No. 1 Jeanie Waltrip, rigging up. Hewletts' Store district: F. F. Gibson and others No. 1 Ettie Howard, rigging up.

Southwest Texas District

By
F. L. SINGLETON

NEW PAY IN HEYSER FIELD; LUBY AREA GETS EXTENSION

CORPUS CHRISTI, Tex., Nov. 29.—Interest in Southwest Texas was concentrated on a prospective pool opener in Goliad County, where a drill-stem test showed favorable possibilities. The well is Rual Swiger No. 1 Wood in the J. Shearn Survey, Block 10, about 12 miles south of Goliad. Casing is being cemented for a production test following two drill-stem tests. The first test at 4,971-5,018 feet through a quarter-inch choke on bottom and a three-eighths inch choke on top showed 30 pounds of working pressure, 90 feet of pipe line oil and 150 feet of oily mud. The second test at 5,018-22 feet showed several joints of oily mud and 15 pounds of working pressure. The hole was then cored at 5,026-27 feet, which recovered oil sand, and from 5,044-48 feet, total depth, sand with a faint oil odor and a salty taste was recovered. The hole is bottomed in the Vicksburg horizon.

In Victoria County two wildcats were being watched as preparations were being made for completion tests. Southeast of Telfener, in the Thomas C. Burnham Survey, W. V. Bowles drilled to 6,121 feet, and is plugging back to sidetrack and redrill several sections in which favorable indications were encountered. Sand and shale with streaks of sand having an oil and gas odor were cored at 5,941-45 feet, but on a 7-minute drill-stem test it showed 10 pounds of pressure, 680 feet of oily salt water and 150 feet of salt water. The hole is expected to be sidetracked above 5,100 feet and tests made at 5,132-35 feet and from 5,641-43 feet where showings were encountered. Midway between the Placedo and Keran fields, Stanolind Oil & Gas Co. No. 1 Henderson and Pickering, in Lot A, Block 2, of the Eugene Benavides Survey, has been plugged back from a total depth of 7,502 feet to 6,424 feet and 7-inch casing has been cemented at 6,423 feet, preparatory to testing several possible sands indicated in a Schlumberger survey.

New Pay in Heyser Field

In the Heyser field, northern Calhoun and southern Victoria counties, Gulf Oil Corp. No. 1 Traylor flowed 10 bbls. of pipe line oil per hour from a new sand topped at 6,030 feet and bottomed at 6,037 feet. This is the fifth producing sand opened in the field. It is a west offset to a 5,700-foot producer in the northern part of the field. The 5,700-foot pay was extended about 1,400 feet south with the completion of Normandie Oil Co. No. 9 Cook, which flowed 146 bbls. per day through a one-eighth inch choke from sand topped at 5,736 feet and bottomed at 5,743 feet.

The potentiality of H. H. Howell and others No. 1 Talbert, 5 miles east of Premont in the Los Jaboncillos grant, a prospective pool opener in Jim Wells County, remains in doubt as swabbing continues with little success. The well is being swabbed from perforations at 3,595-3,610 feet, showing some gas and salt water. Prospects for commercial production from another wildcat in this county were dimmed as Magnolia Petroleum Co. was squeezing off perforations after the well showed salt water at 6,713-23 feet.

Luby Field Extended

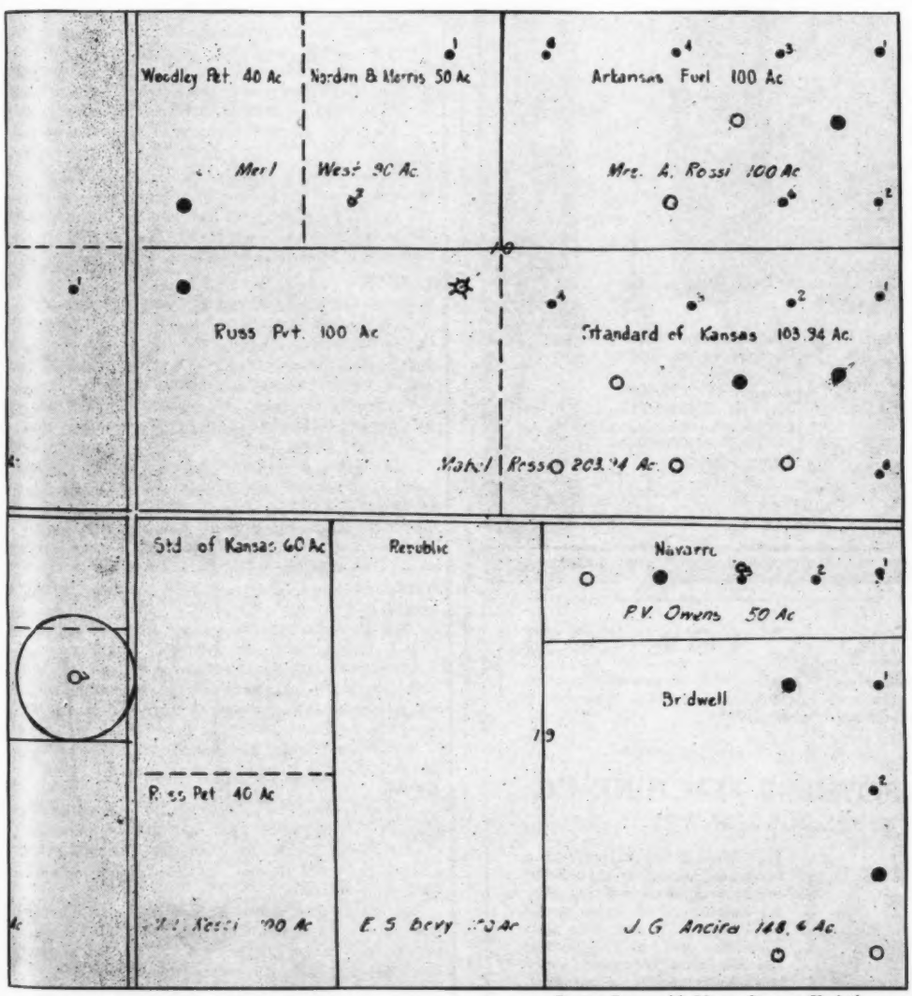
The Luby field, Nueces County, was extended 1 mile to the east with the completion of Richardson Petroleum Corp. No. 1 Cunningham, distillate producer under a tubing pressure 1,300 pounds and casing pressure 1,400 pounds. Production was obtained from a sand section at 4,084-4,107 feet that was shown on a Schlumberger survey. Location has been made to the north for No. 1 Chapman. In the southern part of the field, Stanolind Oil & Gas Co. No. 4 McCann flowed 145 bbls. per day from a total depth of 5,061 feet. New locations were made by Seaboard Oil Corp. for Nos. 3 and 8 Luby in Blocks 2 and 1, respectively. Northwest of the Agua Dulce field, Southern Minerals Corp. No. 2 King has been completed after an initial production of 310 bbls. of fluid of which 25 per cent is oil and the balance salt water. This opens a producing spot for the county.

Across the line in San Patricio County, 1½ miles north of Mathis, Argo Oil Corp. is swabbing No. 1 Soehnge in an attempt to get it to flow. Drilled to a total depth of 6,310 feet, 7-inch casing was cemented at 4,935 feet and perforations were made at 4,843-47 feet where a Schlumberger survey showed favorable indications. Location is in the Delgado Survey. Midway between the Sinton and Taft fields, Rutherford Oil Corp. and Tide Water Associated Oil Co. No. 1 W. T. George was drilling below 4,000 feet with no showings reported. It is located in Lot 12, George Paul Subdivision.

Benavides Outposts Look Good

Interest in the Laredo district was centered on the Benavides field, Duval County, where two important outposts have indicated major extensions. On the east side, about 3,000 feet north and east of production, Frank Gravis No. 1 Vaello is preparing to make a drill-stem test after sand with a showing of oil and gas was cored at 4,897-4,906 feet. The well is checking about normal with Woodley Petroleum Corp. No. 1 Morales to the southwest. The sand, however, is believed equivalent to the Gravis sand and not the same from which the Woodley well is producing. About the same distance from production on the west side of the field, Circle Oil Co. was drilling plug preparatory to testing No. 1 West. The Cockfield sand showing oil and gas was cored at 5,342-57 feet and 7-inch casing was cemented at 5,342 feet. It is located 3,000 feet south of Navarro Oil Co. No. 1 Rossi and it will mean an important extension for this particular section of the field were production is had only from the Cockfield horizon.

A new field for Starr County was indicated at J. L. Collins No. 1 Guerra, in the northeastern part of the county in the San Jose grant, Abstract 575. Broken sand was cored at 6,076-98 feet, tight sand with a fair odor of oil was cored at 6,098-6,105 feet and broken sand showing oil at 6,122-34 feet. On a nine-minute drill-stem test through three-sixteenths inch choke on bottom and one-quarter inch choke on top, it showed 385 feet of oil, 385 feet of salt water and 25 pounds of working pressure. The well was scheduled to be drilled to 7,500 feet and it is not known whether a production test will be made,



Porter Regenold, Maps, Corpus Christi

Plat of a portion of the Benavides field, Duval County, showing Circle Oil Co. No. 1 West, which is expected to add another important extension to the field

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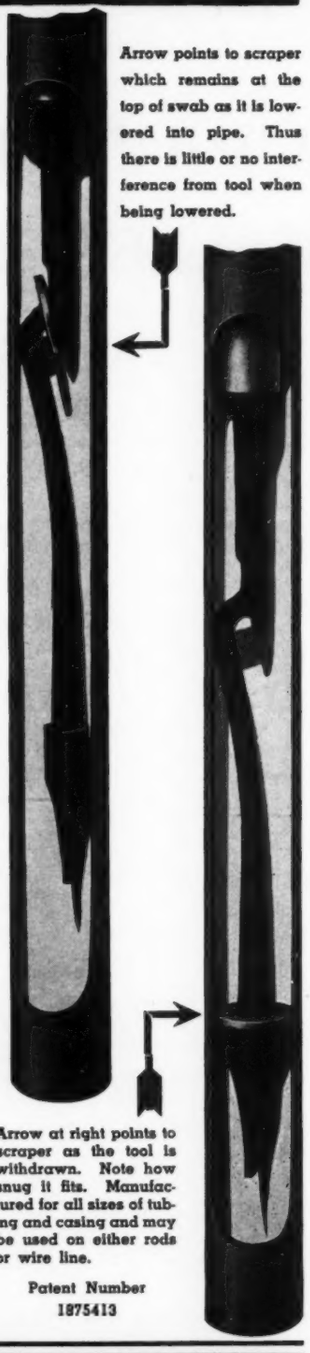

Arrow points to scraper which remains at the top of swab as it is lowered into pipe. Thus there is little or no interference from tool when being lowered.

Arrow at right points to scraper as the tool is withdrawn. Note how snug it fits. Manufactured for all sizes of tubing and casing and may be used on either rods or wire line.

Patent Number
1875413

KEEPS WELLS PRODUCING AT LOW COST

With the Hart Straight-Line Bailing Machine and 35-foot mast you have a multi-purpose machine that saves money on cleaning out, bailing or swabbing, pulling tubing, drilling and cleaning out caveins, stringing pipe, erecting derricks and other similar applications. Complete with accessories, machine can be hauled on one wagon or truck. Operates on natural gas or gasoline.

Write for circular and price list.

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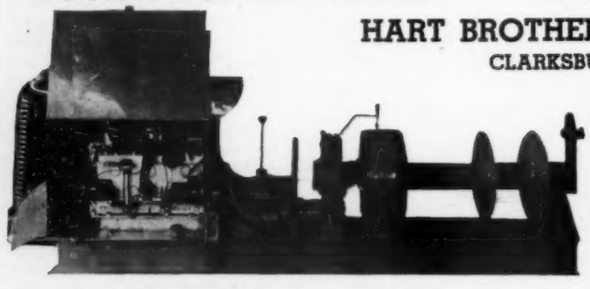


¶The machine is equipped with a 54-brake horsepower six-cylinder engine mounted on an 8-inch channel iron frame. ¶ Drum spools 5,000 feet of ⅜-inch wire line. ¶Spudding arm has 22-in. stroke. ¶Double-acting air-cooled brake holds automatically in any position. ¶Helical cut reduction gears. ¶Ball bearing equipped throughout.

or the hole deepened. Late in the week, it was shut down waiting orders.

In the Valley area, the most interesting development was the purchase of 179.51 acres of proven oil land in the Sam Fordyce field in Hidalgo County. The deal involved 27 producing wells and was purchased by Frank Ware of New York for a reported price of $315,000. The property was purchased from G. W. Wheeler, K. D. Harrison, Don Danvers, Lee Davis and the Val-Tex Oil Co. Drilling operations in the valley are routine with several wildcats throughout the district reaching critical depths, but no worthwhile showings have been encountered.

Prospects of opening a new field along the Balcones Fault line in Atascosa County were not encouraging as L. M. Stern No. 1 Crawford, 2 miles west of Anchorage in the J. C. Crawford Survey No. 69, is showing brackish water with little oil while swabbing from Chalk formation at 3,476 feet. The swab was run to bottom and the recovery was salt water. The tubing was then pulled and the operators let the well stand for 24 hours. While the bailer was being run, 900 feet of fluid was found in the hole, the top 30 feet being oil, but after it had been bailed down 400 feet it began to show brackish water.

After flowing for several days at the rate of 75 to 100 bbls. daily, McNeil Petroleum No. 1 Moreno, which opened a shallow field for Caldwell County two weeks ago, quit and is being placed on the pump. It is bottomed in chalk at 1,752 feet and production, which is heavy oil, is believed to be coming from a crevice. Location is 3 miles southwest of Lytton Springs.

A 1-mile north extension to the active Oilton field, Webb County, was indicated as J. R. B. Moore No. 1 Garcia-Vellareal in Survey 338, Block 5, tested dry gas on a drill-stem test at 1,903-11 feet, with 210 pounds of working pressure. It is coring ahead at 1,936 feet.

Wells Completed

Completed wells in the proven fields and wildcat areas, with their total depth, and the initial 24-hour production of the producing wells, were as follows:

Aransas County, McCampbell field: Norman W. Bertelsen No. 2-A Murray, 7,127 feet, 115 bbls., 50 per cent salt water; Frankston Oil Co. No 1 Murray, 7,247 feet, 35 bbls. distillate through three-sixteenths inch choke.

Brooks County, Alta Mesa field: Standard of Texas No. 5 Mestina, perforated casing at 2,986 feet, 15 bbls., jetting.

Caldwell County, Branyon field: Compton and others No. 1 Atkinson, 2,125 feet, 60 bbls.; Lincoln Petroleum Co. No. 6-B Branyon, 2,346 feet, 20 bbls. Burdette field: Taylor Refining Co. No. 2 Punch, abandoned 2,250 feet. Dunlap field: Charles Schreiner, 2,170 feet, 60 bbls., pumping.

Duval County, Benavides field: V. L. Blanchard No. 1 Puig, 5,408 feet, 110 bbls., some salt water; Bridwell Oil Co. No. 6 Anciro, 4,728 feet, 100 bbls. through one-eighth inch choke; Navarro Oil Co. No. 4 Owens, 4,771 feet, 9 bbls., five-sixteenths inch choke. Hoffman field: Cox & Hamon No. 12 Green, 2,761 feet, 75 bbls.; Gulf Stream Oil Co. No. 6-B Hoffman, 2,776 feet, 20 bbls., one-quarter inch choke. Loma Novia field: Shell Petroleum Corp. No. 14 Bishop, 2,559 feet, 20 bbls. flowing and swabbing. Lundell field: Government Wells Oil Co. No. 11 Lundell, 1,513 feet, 3 bbls. through three-eighths inch choke. Piedra Lumbre field: Magnolia Petroleum Co. No. 9 D. C. R. C., 2,036 feet, 72 bbls., jetting. Sweden field: Hiawatha Oil & Gas Co. No. 3 Miller, 5,934 feet, perforated at 5,818-27 feet, 25 bbls. distillate, one-eighth inch choke.

Guadalupe County, Darst Creek field: Texas Co. No. 3 A. E. Dowdy, 2,539 feet, 150 bbls., pumping.

Hidalgo County, Sam Fordyce field: Fohs Oil Co. No. 1 Guerra, 3,253 feet, perforations at 2,987-90 feet, 40 bbls., one-eighth inch choke; Graham and others No. 2 Villareal, 3,032 feet, 100 bbls., three-eighths inch choke.

Jim Hogg County, Las Animas field: Darby Petroleum Co. No. 1-A Holbien, perforations at 1,765-82 feet, gas well.

Goliad County, North Pettus field: Magnolia Petroleum Co. No. 19 Porter, 3,687 feet, 32 bbls., pumping.

Jim Wells County, Premont field: Homer Prisnoll and others No. 1-A Holmes, 2,351 feet, 40 bbls. of oil, 400 bbls. of fresh water.

Karnes County, South Burnell field: Luling Oil & Gas Co. No. 10 Boyce, 3,667 feet, 155 bbls., three-sixteenths inch choke; Luling Oil & Gas Co. No. 11 Boyce, 3,686 feet, 126 bbls., three-sixteenths inch choke.

Live Oak County, Oakville field: Simmon Oil & Gas Co. No. 3-B Reagan, 2,838 feet, 22 bbls. oil, 14 bbls. of salt water.

(Continued on Page 83)

California Field Report

By
L. P. STOCKMAN

LONG BEACH EXTENSION TO WILMINGTON OPEN TO DRILL

LOS ANGELES, Calif., Nov. 29. — Superior Judge Fred Miller has dissolved the temporary restraining order which for the past week prevented the Long Beach Harbor Commission from issuing drilling permits in the Long Beach section of the Wilmington field and as a result the way has been cleared for immediate development. During the first 24 hours, 51 applications for drilling permits were filed and 21 have been approved by the Harbor Commission's engineer. The temporary restraining order which was dissolved a few days ago was issued as the result of a petition filed by J. E. Webb, who sought to quiet title to tideland acreage. Applications for drilling permits were filed by General Petroleum Corp., Union Pacific Railroad Co., Bankline Oil Co., Superior Oil Co., Richfield Oil Corp., and Pacific Western Oil Co. More than 300 wells have been completed in the Wilmington field and it is believed that at least 200 additional wells will be completed within the next six months. Wells in the town lot area have shown an abnormally high decline in contrast with those of General Petroleum Corp. and Union Pacific Railroad Co., which are spaced on an acreage basis. Productive limits of the field have been defined to the north and west but drilling restrictions have prevented normal development to the east and south.

Eight New Wells in Wilmington

Eight new wells were completed in the Wilmington field. Union Pacific Railroad Co. No. 65, bottomed at 3,350 feet, was brought in flowing 770 bbls. of exceptionally clean 21.5-gravity oil per day and shows a tubing pressure of 215 pounds and a casing pressure of 600 pounds. No. 67 was completed flowing 582 bbls. of relatively clean 20.7-gravity oil per day from 3,316 feet after the hole had been plugged back from 3,472 feet. In addition to running seven strings of tools, Union Pacific has five new rigs erected and has staked locations for Nos. 75, 76, 77, 78, 79 and 2-E. Bankline Oil Co. completed No. 24 D.H.C., flowing 471 bbls. of clean 20.6-gravity oil daily through a 24/64-inch bean. It was finished at 3,312 feet and has an 8⅝-inch water string cemented at 3,012 feet. The company's No. 8 P.T.C. was completed pumping 92 bbls. of 15.7-gravity oil cutting 5 per cent. It was bottomed at 3,437 feet and finished with 303 feet of 6⅝-inch liner including 297 feet of perforated landed at 3,433 feet. Exeter Oil Co. completed No. 2 Banning, a producing well flowing 363 bbls. of 16.5-gravity oil. It was brought in flowing through a 22/64-inch bean from 3,615 feet after the hole had been finished with 727 feet of 7-inch liner including 675 feet of perforated landed on bottom. No. 7 Terminal of General Petroleum Corp. pumped 115 bbls. of 16.7-gravity oil per day from 3,125 feet. Allied Petroleum Corp. No. 25-W was brought in pumping 148 bbls. of 14.6-gravity oil, cutting 3 per cent, from 3,705 feet. Wilton Oil Co. wound up the work by finishing No. 2 Wilmington pumping 210 bbls. of 15.3-gravity oil from 3,640 feet. Royalty Service Corp. is putting the finishing touches on its No. 22-7 and will complete it with a gravel pack back of the 6⅝-inch liner.

New Field in Kern County

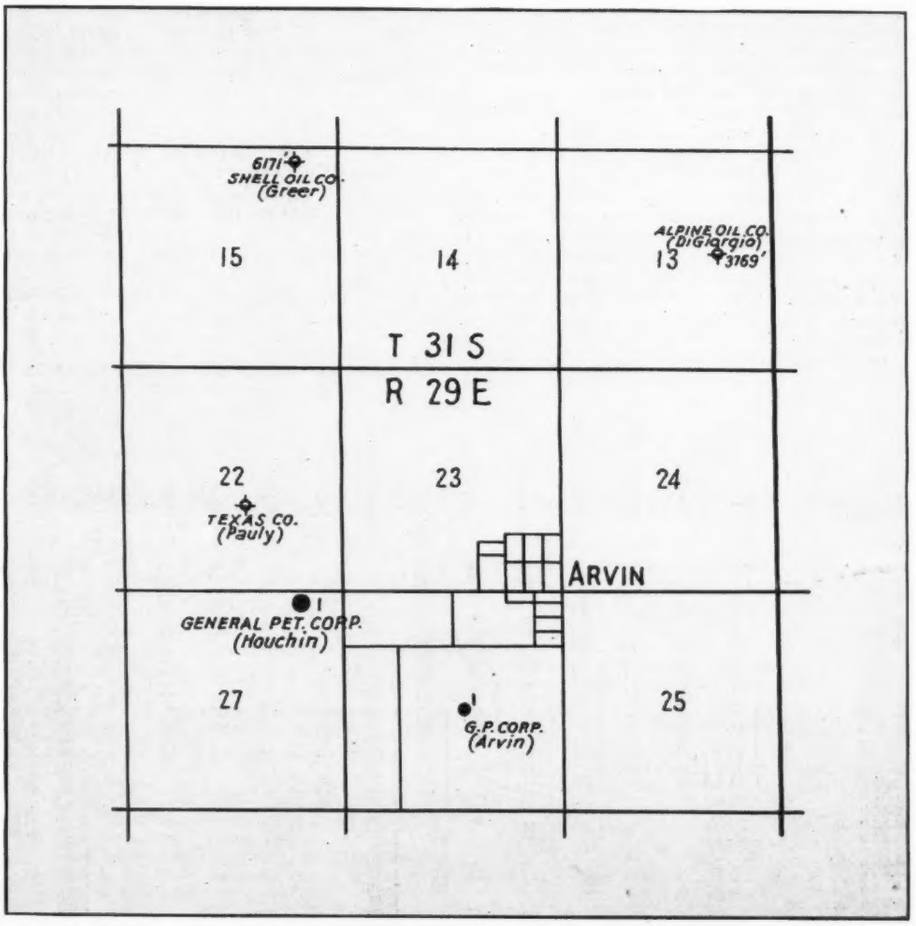
Ohio Oil Co. definitely proved the existence of a highly prolific oil field a few miles northwest of the Ten Section field by completing No. 3-E Kern County Land, flowing 2,112 bbls. of exceptionally clean 36.9-gravity oil and 17,000,000 feet of gas per day from 8,175 feet. This well, which was finished with a 7-inch water string cemented at 8,095 feet and 100 feet of 4¾-inch drillable liner including 80 feet of perforated, was brought in flowing through a 1-inch bean and showed a tubing pressure of 350 pounds and a casing pressure of 1,450 pounds. Top of the oil sand was logged at 8,095 feet and the bit was still in the pay when drilling operations were concluded. The new oil area is expected to be designated as the Strand field. Discovery of this new field climaxes an intensive search by major operators extending over a period of several years and successful application of geophysical exploration. This series of important discoveries began late in 1936 when Standard Oil Co. discovered the Greeley field subsequent to discovery of the Ten Section field by Shell Oil Co. Within the past few weeks Union Oil Co. chalked up a new discovery of primary importance in the Rio Bravo district of Kern County at 11,302 feet and preparations have been made to drill similar deep tests in the Greeley field. In addition to these important discoveries exploration work has resulted in the discovery of secondary accumulations east of the Round Mountain field in Kern County, northwest of the Mount Poso field and west of the Los Cerritos section of the Long Beach field.

Greeley-Ten Section

Standard Oil Co. completed another new well in the Greeley field of Kern County and this new producer like previous completions showed substantial production Standard's new well, No. 3-1 Fleischauer in section 20-29-26, was brought in flowing 2,760 bbls. of clean 59.4-gravity oil and 56,000,000 feet of gas per day from 7,760 feet, after the hole had been plugged back from 7,855 feet because of a gray sand logged in the bottom of the hole. No. 1 Fleischauer, which was brought in flowing through two 1½-inch beans, was completed in the gas cap on the apex of the structure with 122 feet of 6⅝-inch liner including 79 feet of 60-mesh screen landed at 7,759 feet. This new producer was shut in immediately subsequent to completion and shows a pressure of 2,300 pounds on the tubing and 2,350 pounds on the casing. Standard Oil Co.'s next producer in the Greeley field is expected to be No. 11-9 Kern County Land in section 20-29-26 as it has been finished at 7,797 feet and cemented through perforations at 7,712 feet. Superior Oil Co. has already passed the 6,500-foot level in No. 1 Krause in section 21-29-26 and should reach the completion depth within another few weeks. This outpost, located in the eastern end of the structure, looks quite promising due to extension work of the Standard Oil Co. in this end of the field. Southeast of the Greeley field where Superior Oil Co. is believed to have discovered a new productive area Superior has recemented its initial well and is rotating ahead in its second test, No. 10 Kern County Land in section 3-30-26, at 7,100 feet. The initial test showed an initial of 253 bbls. daily from 7,870 feet before going to water either because of defective shut-off or edgewater.

Rio Bravo

In the Rio Bravo field, located northwest of the



General Petroleum Corp., which has completed one small well in the Arvin section of Kern County, has made preparations to drill another test on the Pauley property in section 22-31-29

Greeley field, Union Oil Co.'s discovery well is holding up in good shape as present production is 2,575 bbls. of clean 38.9-gravity oil and 4,125,000 feet of gas daily. During the past week the gas-oil ratio has averaged approximately 1,600 feet of gas per barrel of oil. Preparations to construct a natural gasoline plant in the Rio Bravo field will be held in abeyance pending the outcome of development work now in course of progress. Union Oil Co. completed the rig for No. 2-34 Kern County Land, northwest of its discovery well, and Superior Oil Co. is making preparations to spud in No. 1 Wagner east of the discovery well in section 35-28-25. No. 1-34 Kern County Land, Union Oil Co.'s discovery well in the Rio Bravo field, is flowing through a 23/64-inch tubing bean and shows a pressure of 1,735 pounds on tubing and 2,100 pounds on the casing, indicating that bottom-hole pressure is well in excess of 4,000 pounds. In the Ten Section field, Shell Oil Co. is running three strings of tools and has completed a new rig for No. 25-85-B Kern County Land in section 25-30-25. No. 36-30-A Kern County Land, in section 30-30-26, is rotating ahead in the pay at 7,898 feet, but No. 8-A Kern County Land, in section 28-20-26, has not yet encountered anything of unusual promise from the grass roots down to 8,667 feet. Over in the Strand area, where Ohio Oil Co. has proved up the existence of a new oil field, Shell Oil Co. is rigging up a north line offset and should begin actual drilling within another week or 10 days.

Santa Maria

Drilling operations in the Santa Maria Valley field have shown a substantial increase during the past fortnight after slowing down for a period of about a month and present indications point to a continuance of development work during the forthcoming winter period. New wells are being started by Fred Cole, Hancock Oil Co., Pacific Western Oil Co., Signal Oil & Gas Co., Sunshine Oil Co. and Union Oil Co. Two small wells were completed during the current week, but this unfavorable condition will be offset soon as there are several potential producers nearing completion which are expected to register large production. One of these potential producers is Frank Jones No. 1 Gallison, in section 26-10-34, which on a formation test at 4,897 feet indicated a possible potential of 2,500 bbls. daily. Pacific Western Oil Co. is putting the finishing touches on No. 1 Samarin, in section 27-10-34, and a production test will be made within another 10 days. Top of the Santa Margarita was logged at 4,391 feet and top of the Monterey and Franciscan basement were cored at 4,590 feet and 4,826 feet, respectively.

The two new wells completed in the Santa Maria Valley field during the week were No. 1 Community of Linnell Oil Co. in section 23-10-34 and No. 1 Doane of York Oil Co. in section 27-10-34. The former was completed pumping 51 bbls. of 15.4-gravity oil cutting 14 per cent per day from 3,211 feet and the latter was brought in pumping 53 bbls. of 16.2 gravity oil daily from 4,464 feet. Tide Water Associated Oil Co. completed two small wells in the Ventura Avenue field during the early part of the present week and should have another ready for a production test in the deep 57 zone shortly. The company's new producers were No. 30 Lloyd, which was brought in flowing 65 bbls. of 21.5-gravity oil cutting 20 per cent along with 344,000 feet of gas daily from 6,875 feet, and No. 63 Lloyd, which was completed flowing 105 bbls. of 22.7-gravity oil cutting 21 per cent and 114,000 feet of gas daily from 4,850 feet after the hole had been carried down to 5,120 feet. The former is flowing through a 1-inch bean while the latter, which was finished with 251 feet of 5-inch liner including 201 feet of perforated, is flowing through a 1½-inch bean.

Mount Poso

Four new wells were completed in the Mount Poso field of Kern County during the current week and all of them can be considered commercial producers due to the shallow depth at which production was secured. Ring Oil Co., which discovered a new productive area northwest of the northern tip of the Mount Poso field, completed No. 3 Shapiro pumping 373 bbls. of clean 16.1-gravity oil daily from 1,760 feet and will probably wait another 60 days before undertaking any additional development due to the large amount of drilling done during the past six months. In this same area D. G. Vedder completed No. 4 B.N.B. in section 32-26-28 pumping 175 bbls. of clean 15.9-gravity oil daily from 1,752 feet after finishing the hole with 81 feet of 6⅝-inch liner including 61 feet of 140-mesh screen landed at 1,751 feet. In the Premier section of the Mount Poso field, Pebble Beach Oil Co. completed No. 5 Newhope in section 29-27-27 pumping 102 bbls. of relatively clean 13.9-gravity oil per day from 2,621 feet after the hole had been finished with 216 feet of 6⅝-inch liner including 181 feet of 120-mesh screen landed on bottom. The company has staked location for No. 6 Newhope in the same section and rig construction is scheduled to get under way soon. In the older section of the Mount Poso field, the Texas Co. has completed No. 12 Vedder in section 4-27-28 pumping 110 bbls. of 16.9-gravity oil daily from 1,586 feet.

Round Mountain

Development work in the Round Mountain field of Kern County resulted in the completion of three excellent wells during the present week and this success will undoubtedly lead to additional drilling. California Western Oil Co. completed No. 8 in section 12-28-28 pumping 439 bbls. of clean 15.3-gravity oil per day from 1,942 feet and the crew from this well has been moved to No. 9. On the Kernco lease, which the company recently took over from St. Helens Petroleum Co., California Western Oil Co. staked location for No. 4. In the productive area about 1 mile east of the original Round Mountain field, proved up several months ago, Eastmont Oil Co. completed No. 6 Olcese in section 16-28-29 pumping 274 bbls. of very clean 16.9-gravity oil daily

(Continued on Page 88)

TANKER SHIPMENTS FROM LOS ANGELES TO DOMESTIC AND FOREIGN PORTS

	November 18 — Total this week	November 18 — Daily average	November 11 — Total last week	November 11 — Daily average	This year to date	Same time last year
Intercoastal-domestic:						
Crude oil	.....	.....	.....	.....	129,788	.....
Diesel and gas oil	.....	.....	.....	.....	176,726	231,426
Gasoline	.....	.....	.....	.....	3,666,922	5,375,252
Kerosene	.....	.....	.....	.....	328,907	1,128,397
Foreign exports:						
Crude oil	476,277	68,040	341,041	48,720	14,126,978	8,353,863
Fuel oil	229,495	32,785	177,300	25,329	12,713,910	9,328,415
Diesel and gas oil	376,552	53,793	185,913	26,559	7,195,968	5,044,997
Gasoline	104,309	14,901	243,942	34,849	7,021,984	6,931,423
Kerosene	.....	.....	35,950	5,136	2,033,872	1,353,369
Lubricants	.....	.....	.....	.....	12,984	.....
Other unfinished oil	.....	.....	.....	.....	974,785	214,212
Coastwise-domestic:						
Crude oil	129,456	18,494	164,805	23,544	5,101,883	6,497,118
Fuel oil	161,517	23,074	303,056	43,294	13,893,009	9,540,937
Diesel and gas oil	48,598	6,943	31,214	4,445	2,048,158	1,042,642
Gasoline	337,295	48,185	408,215	58,316	14,188,810	11,206,220
Kerosene	49,482	7,069	.....	.....	417,562	159,088

TANKER SHIPMENTS FROM SAN FRANCISCO TO DOMESTIC AND FOREIGN PORTS

Intercoastal-domestic:						
Diesel and gas oil	76,985	10,994	.....	.....	299,315	218,603
Gasoline	.....	.....	.....	.....	25,778	285,950
Kerosene	.....	.....	.....	.....	72,750	.....
Asphalt	.....	.....	.....	.....	413,885	327,418
Lubricants	.....	.....	.....	.....	25,522	43,543
Foreign exports:						
Crude oil	73,411	10,487	64,908	9,273	2,969,993	2,979,568
Fuel oil	53,106	7,587	28,523	4,075	1,871,261	2,354,929
Diesel and gas oil	75,874	10,839	74,042	10,577	2,743,704	1,849,928
Gasoline	86,962	12,423	365,463	52,209	4,998,327	3,618,595
Kerosene	34,282	4,897	28,712	4,102	886,153	607,543
Lubricants	.....	.....	.....	.....	474,494	362,367
Other unfinished oil	.....	.....	.....	.....	.....	90,923
Coastwise-domestic:						
Fuel oil	180,911	25,844	118,940	16,991	5,764,171	5,823,424
Diesel and gas oil	26,779	3,826	59,418	8,488	1,319,477	615,988
Gasoline	303,420	43,346	96,175	13,739	5,277,969	4,785,741
Kerosene	.....	.....	30,152	4,307	368,326	203,744

STANDARD OIL CO. OF CALIFORNIA AND UNION OIL CO.

Crude oil prices at the well effective June 22, 1936

Gravity—	Signal Hill (Long Beach)	Seal Beach	Alamitos Heights	Huntington Beach	Inglewood	Playa del Rey	Olinda-Brea Canyon	Athens-Rosecrans	Dominguez	Elwood Terrace	Torrance	Richfield	Whittier E. Coyote (La Habra)	Montebello	W. Coyote Hills	Santa Fe Springs	Mountain View	Elk Hills Buena Vista Hills Midway-Sunset Lakeview Area	Lost Hills	Coalinga	Wheeler Ridge	Kettleman Hills	Santa Paula*	Orcutt*
14-14.9	$.80	$.79	$.74	$.78	$.79	$.80	$.76	....	....	....	$.80	$.76	$.76	$.77	$.78	....	....	$.70	$.70	$.70	....	....	$.70	....
15-15.9	.80	.79	.74	.78	.79	.80	.76	....	....	....	.80	.76	.76	.77	.78	....	....	.70	.70	.70	....	....	.70	....
16-16.9	.80	.79	.74	.78	.79	.80	.76	....	....	....	.80	.76	.76	.77	.78	....	....	.70	.70	.70	....	....	.70	$.70
17-17.9	.80	.79	.74	.78	.81	.80	.76	....	....	....	.80	.76	.76	.77	.78	....	....	.70	.70	.70	....	....	.71	.70
18-18.9	.80	.79	.74	.78	.84	.80	.78	....	....	....	.82	.76	.76	.77	.78	....	....	.70	.70	.70	....	....	.73	.72
19-19.9	.82	.79	.74	.82	.87	.84	.81	....	....	....	.85	.76	.78	.77	.78	....	$.70	.74	.74	.71	$.70	....	.75	.74
20-20.9	.85	.79	.74	.85	.90	.88	.84	....	....	....	.88	.78	.82	.77	.80	....	.70	.78	.78	.72	.70	....	.77	.77
21-21.9	.88	.79	.74	.89	.93	.93	.88	....	....	....	.91	.80	.85	.77	.84	$.78	.73	.82	.82	.74	.70	....	.79	.80
22-22.9	.92	.82	.74	.92	.96	.98	.92	....	....	....	.93	.84	.89	.79	.88	.78	.77	.87	.86	.78	.72	....	.82	.83
23-23.9	.95	.86	.77	.96	.99	1.02	.96	$.84	$.79	....	.96	.88	.93	.82	.92	.78	.80	.92	.90	.82	.76	....	.85	.86
24-24.9	.99	.91	.80	1.00	1.02	1.06	.99	.88	.81	....	.99	.91	.96	.85	.96	.82	.84	.97	.94	.86	.79	....	.87	.88
25-25.9	1.03	.95	.82	1.03	1.05	1.11	1.03	.93	.83	....	1.02	.95	....	.89	.99	.86	.88	1.01	.98	.90	.83	....	.90	.91
26-26.9	1.06	1.00	.85	1.07	1.09	1.16	1.06	.98	.86	....	1.05	.98	....	.92	1.03	.90	.91	1.06	1.02	....	....	....	.92	.93
27-27.9	1.10	1.05	.88	1.11	1.12	....	1.10	1.03	.88	....	....	1.02	....	.96	1.06	.95	.95	1.10	1.06	....	....	....	.95	....
28-28.9	1.14	1.10	.90	1.14	1.15	....	1.14	1.07	.90	....	....	1.06	....	.99	1.10	.99	.99	1.15	1.10	....	....	....	.97	....
29-29.9	1.17	1.15	.93	1.18	1.18	F.O.B.	1.17	1.12	.93	....	....	1.09	....	1.03	1.14	1.03	1.02	1.20	1.14	....	....	....	.99	....
30-30.9	1.21	1.19	.95	1.22	1.21	our	1.21	1.17	.95	F.O.B.	....	....	....	1.07	1.17	1.08	1.06	1.25	1.18	....	....	....	1.01	....
31-31.9	....	....	....	....	1.24	Pipe	1.24	1.22	.97	Ship	....	....	....	1.11	1.21	1.12	1.09	1.29	....	....	....	....	....	....
32-32.9	....	....	....	....	1.27	Line	1.27	1.27	1.00	....	....	....	....	1.14	1.25	1.16	1.13	1.34	....	....	....	....	....	....
33-33.9	....	....	....	....	....	....	....	1.32	....	$1.28	....	....	....	1.18	1.28	1.20	1.17	1.38	....	....	....	$1.19	....	....
34-34.9	....	....	....	....	....	....	....	1.37	....	1.32	....	....	....	1.22	1.32	1.25	1.20	....	....	....	....	1.23	....	....
35-35.9	....	....	....	....	....	....	....	1.42	....	1.35	....	....	....	1.25	....	1.29	....	....	....	....	....	1.27	....	....
36-36.9	....	....	....	....	....	....	....	1.46	....	1.39	....	....	....	1.29	....	1.33	....	....	....	....	....	1.31	....	....
37-37.9	....	....	....	....	....	....	....	1.51	....	1.43	....	....	....	1.32	....	1.37	....	....	....	....	....	1.35	....	....
38-38.9	....	....	....	....	....	....	....	1.56	....	....	....	....	....	1.36	....	1.42	....	....	....	....	....	1.39	....	....
39-39.9	....	....	....	....	....	....	....	1.61	....	....	....	....	....	1.40	....	....	....	....	....	....	....	1.43	....	....
40-40.9	....	....	....	....	....	....	....	1.66	....	....	....	....	....	1.43	....	....	....	....	....	....	....	....	....	....

Newhall, McKittrick, Kern River, Kern Front and Round Mountain, 70 cents for all grades. *Posted by Union Oil Co. Same company's Brea Canyon schedule stops at $1.14 for 28 degrees and over, and Belridge and Lost Hills schedule stops at $1.32 for 37 degrees and over. By Standard Oil Co., effective October 15: El Segundo, 14 to 18.9 degrees, 80 cents; 19-19.9, 82 cents; 20-20.9, 85 cents; 21-21.9, 88 cents; 22-22.9, 92 cents; 23-23.9, 95 cents; 24-24.9, 99 cents; 25-25.9, $1.03; 26-26.9, $1.06; 27-27.9, $1.10; 28-28.9, $1.14; 29-29.9, $1.17; 30-30.9, $1.21. Wilmington, 14 to 16.9, 75 cents; 17-17.9, 77 cents 18-18.9, 79 cents; from 19 degrees upward, prices same as Signal Hill.

Kansas Developments

By
DAL DALRYMPLE

NEW POOL IN RICE COUNTY; ANOTHER BIG HABIGER WELL

Sleet, snow and freezing weather combined to retard field activity in Kansas, holding completions of the week to 35, exclusive of the stripper district in the eastern counties, but did not prevent the opening of new producing areas in Rice and McPherson counties nor the completion of another big well in the Habiger pool, Ellsworth County.

The big well of the week was Skelly Oil Co. No. 2 Zink, SE SW SW section 32-17-10w, in the Ellsworth County sector of the Habiger pool, which also extends into Rice County. The new well flowed 1,237 bbls. of oil in the first four hours after acidizing with 6,000 gallons, and flowed 1,250 bbls. the next four hours for potential rating of 7,421 bbls. It had Kansas City-Lansing lime at 2,933-3,016 feet. Gas gauged 13,000,000 feet. It is an east offset to the Skelly No. 1 Zink, SW cor. section 32-17-10w, which was completed recently for 7,604 bbls. of oil to make it the largest producer in the area. The west offset to No. 1 Zink, Skelly No. 1 Moran, SE cor. section 31, made potential of 6,781 bbls. of oil when completed some weeks ago. The pool was opened in September when Bridgeport Machine Co. brought in a big producer at No. 1 Habiger, NW cor. section 5-18-10w, Rice County.

W. E. Witt and Sam A. Murphy No. 1 Fair, NW SE SE section 4-22-8w, opened a new producing area south of Sterling, in southern Rice County. It was flowing from 5 to 10 bbls. of oil an hour by heads, with gas gauging 1,000,000 feet daily. Conglomerate was topped at 3,330 feet, first pay at 3,339 feet, and the hole was bottomed at 3,344 feet. Gravity of the oil was 33 degrees. The wildcat is on a block of 1,600 acres, straddling the Rice-Reno county line.

Jess Cling and associates appeared to be opening a new oil area at No. 1 Dole Estate, SE NW NE section 12-19-1w, 3 miles northeast of the town of Canton in eastern McPherson County. It topped Chat at 2,850 feet, total depth 2,865 feet, and the oil rose in the hole to the casinghead in two hours. Gas was estimated at 1,500,000 feet daily. Casing was set on top of the Chat. Nearest production is in the one-well North Canton pool, 2 miles southward.

Another producer from the first break in the Mississippi lime was recorded in the busy Neosho Falls district of northeastern Woodson County at Diller Oil & Gas Co. and Harry L. Mourer No. 1 Union Central, NW NW SE NE section 8-24-17. It flowed 370 bbls. of oil in 12 hours after acidizing with 2,000 gallons. The oil was 33 gravity. Mississippi lime was topped at 1,214 feet, total depth 1,242 feet. The new producer is one-fourth mile east of the recent discovery well drilled by A. C. Thompson and associates, 1½ miles south of the town of Neosho Falls and 2½ miles southwest of the Draper pool, opened the past summer by the Diller-Mourer interests. Fifteen rigs were reported active in the Neosho Falls area the past week.

December allowable production for the state was set at 176,700 bbls. of oil daily by the Kansas Corporation Commission. This represents a 5 per cent reduction from the Bureau of Mines recommendation and is 3,515 bbls. daily under the November allowable.

Wildcat Operations

Three wildcat wells were completed in Kansas the past week, one being the Stafford County pool opener drilled by Fred Rust and associates at No. 1 Drach, NE NE SW section 12-22-13w, northwest of Hudson. After second acid treatment it flowed 347 bbls. of oil in eight hours, making potential of 945 bbls. Before first acid treatment it had pumped 589 bbls. of oil in 22 hours. Gravity of the oil was 35.2 degrees. Top of anhydrite was 700 feet, Kansas City lime 3,355 feet, Simpson formation 3,640 feet, Siliceous lime 3,693 feet, total depth 3,705 feet.

Thurman Hill and others No. 1 Lawson, SW SW NW section 7-14-22w, wildcat in Trego County, found anhydrite at 1,695 feet, Kansas City lime 3,675 feet, Simpson zone 4,320 feet, Siliceous lime 4,340-98 feet, total depth, and it was dry and abandoned.

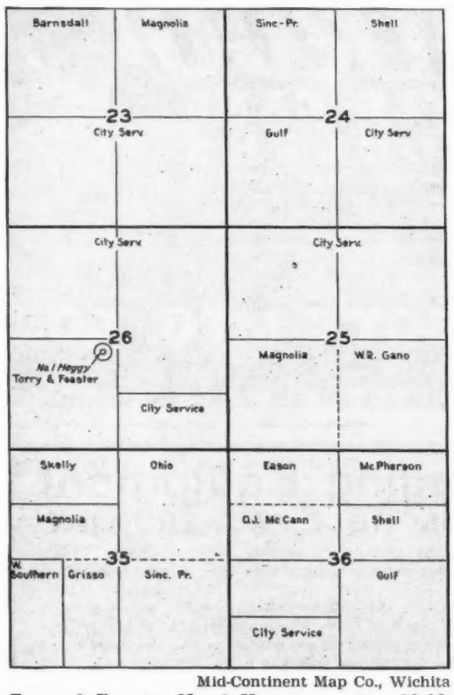
Continental Oil Co. and others No. 1 Oehlert, NW NW SE section 7-27-4w, Sedgwick County wildcat, had Siliceous lime at 4,140-47 feet, total depth, water was showing and it was abandoned.

First reports of new wildcats in Kansas follow:

Witt & Sheridan and others No. 1 Morrison, NW SE SW section 29-10-17w, Rooks County, moving in material.

J. J. Muth No. 1 Penney, C N half NE SE section 29-14-18w, an old test in Ellis County at which work has been resumed, drilling at 350 feet.

Shell Petroleum Corp. No. 1 Eckart, SE SE SW section 13-16-14w, Barton County, rigging up rotary.



Mid-Continent Map Co., Wichita

Torry & Feaster No. 1 Heggy, section 26-23-11w, is a new wildcat north of the Zenith pool in Stafford County

Helmerich & Payne and others No. 1 Hoeme, SE SE NE section 20-26-12w, Pratt County, location.

Jeff Archer and J. Crane No. 1 Templin, NW SW SE section 32-17-3w, McPherson County, cellar.

Torry & Feaster and others No. 1 Negley, SW SW NE section 23-22-12w, Stafford County, rigging up rotary.

Lindsay & Balliere and others No. 1 Tiepermann, SW SW NW section 31-22-12w, Stafford County, drilling at 1,545 feet.

Lauck, Moncrief and Vernon Oil & Gas Co. No. 1 Radenberg, NE SE SW section 6-17-12w, Barton County, moving in material.

Russell County

Five wells were completed in Russell County, the largest producer being Mid-Continent Petroleum Corp. No. 3 Letsch, SE SW NW section 26-14-13w, Letsch pool. Top of Kansas City lime was 2,864 feet, pay 2,881 feet, total depth 2,903 feet. After acid treatment, it pumped 506 bbls. of oil the first four hours, 482 bbls. the next four hours and made potential of 2,894 bbls.

Texon No. 3 Letsch, NE NW SW section 26-14-13w, made potential of 1,621 bbls. of oil after acidizing. Top of Kansas City lime was 2,802 feet, total depth 2,923 feet.

Stearns & Streeter No. 6 Miller, NW SE NW section 31-14-13w, had Gorham sand at 3,118-24 feet, total depth, swabbed 35 bbls. of oil an hour and made potential of 1,640 bbls. of oil.

Central Petroleum Co. No. 10 Foster B, SE NW NE section 3-14-15w, Gorham pool, made potential of 1,643 bbls. of oil from Gorham sand topped at 3,318 feet, total depth 3,322 feet.

Stanolind Oil & Gas Co. No. 18 Benso, SW NW SW section 4-14-15w, found Kansas City lime at 3,040 feet, had pay at 3,073-78 feet, total depth, swabbed 1 bbl. of oil an hour, was acidized and made potential of 336 bbls. of oil, with 20 bbls. of water.

New activity in Russell County: Cities Service Oil Co. No. 1 Podszus, NE NE SW section 25-15-14w, moving in material; Brunson and others No. 1 Gaynor, SE SE NW section 19-13-14w, moving in material; Texon No. 4 Letsch, NW SW SW section 26-14-13w, cellar; Smoky Hill Oil Corp. No. 7 Miller, NE SW NW section 31-14-13w, rigging up; Phillips Petroleum Co. No. 5 Carroll, NE NE SE section 18-14-14w, building rotary rig; Texas Co. No. 5 Brandenburg, SW SW NW section 20-14-14w, building rig; Transwestern Oil Co. No. 1 Cram, NW SW SE section 11-14-15w, cellar.

Barton County

Severe weather slowed down operations in Barton County the past week, only three wells being completed.

Stanolind Oil & Gas Co. No. 5 Fred Panning, NW SW NE section 2-20-11w, Silica district, topped Siliceous lime at 3,285 feet, was bottomed at 3,305 feet, plugged back to 3,303 feet, acidized and made potential of 1,886 bbls. of oil.

Stanolind Oil & Gas Co. No. 9 Fred Panning, NW cor. section 11-20-11w, had Siliceous lime at 3,281 feet, total depth of 3,300 feet, was acidized with 2,000 gallons and 3,000 gallons, and made potential of 1,363 bbls. of oil.

Ohio Oil Co. No. 1 Brack, C NW section 20-18-15w, Albert area, had LaMotte sand at 3,471 feet, was bottomed at 3,493 feet, produced 56,134,000 feet of gas and was completed.

First reports of new work in Barton County: Shell Petroleum Corp. No. 1 Hoffman, SE SE SW section 7-16-13w, building rotary rig; same company's No. 5 Schneider B, NW cor. section 1-16-14w, building rotary rig; Stanolind Oil & Gas Co. No. 7 Panning, NE cor. section 10-20-11w, drilling at 1,645 feet; Gulf Oil Corp. No. 5 Sessler, NW NW SW section 24-20-11w, building rotary rig; Texas Co. No. 2 Disque, NE SE SW section 3-17-11w, moving in material.

Ellis County

Only one well was completed in Ellis County. It was Cities Service Oil Co. No. 1 Hall B, NW cor. section 26-11-17w, Bemis district. Top of Siliceous lime was 3,393 feet, total depth 3,399 feet. It pumped 311 bbls. of oil the first four hours, 333 bbls. the next four hours and made potential of 1,867 bbls.

Cities Service Oil Co. No. 14 Bemis, SW NW SE section 21-11-17w, was a location. Phil-Han Oil Co. and Seeley No. 1 Smith, SW NW SW section 12-12-16w, was a location.

Rice County

H. B. Garden No. 1 Oden, SW SE NW section 5-21-7w,

Saxman area, Rice County, topped Conglomerate at 3,324 feet, total depth 3,337 feet, and made potential of 772 bbls. of oil, completed.

Stanolind Oil & Gas Co. No. 4 Manke, NW SW SE section 28-19-10w, Silica area, topped Siliceous lime at 3,243 feet, was bottomed at 3,265 feet, was shot and acidized with 13,600 gallons, and made potential of 315 bbls. of oil.

Ohio Oil Co. No. 2 Wilcox, C W half W half SW section 18-19-9w, was completed as a water disposal well after plugging back from 3,303 feet, total depth, to 1,572 feet.

Saco Oil Co. and others No. 4 Wickerham A, SE cor. section 7-20-9w, had Siliceous lime at 3,303-14 feet, total depth, was acidized, pumped 50 bbls. of oil and 50 bbls. of water in eight hours and made potential of 198 bbls. of oil, with water.

Three new operations in Rice County were reported. Atlantic Refining Co. No. 2 Gossman B, SE SE NW section 8-21-7w, was a cellar. Texas Co. No. 11 Kleile, NE NE SW section 34-19-10w, was moving in material. Gulf Oil Corp. No. 2 Stout, SE NE NE section 6-18-10w, had dug cellar.

Stafford County

Stanolind Oil & Gas Co. No. 3 Spangenberg, NW SW NW section 29-22-11w, Hudson pool, Stafford County, found Siliceous lime at 3,558 feet, total depth 3,582 feet, swabbed 10 bbls. of oil an hour, was acidized and made potential of 150 bbls. of oil, with 2 per completed.

Same company's No. 4 Spangenberg, SW NW SW section 29-22-11w, found Siliceous lime at 3,558 feet, was bottomed at 3,585 feet, plugged back to 3,579 feet, acidized and made potential of 150 bbls. of oil, with 2 per cent water.

Amerada Petroleum Corp. No. 1 Teichman, NW NW SE section 12-22-13w, had dug cellar.

McPherson County

E. B. Shawver and associates No. 2-B Klassen, NW SE NW section 21-19-1w, Ritz-Canton district, McPherson County, found Wilcox sand at 3,409 feet, total depth 3,432 feet, and made potential of 247 bbls. of oil.

American National Petroleum Co. No. 1 Wedel, NW NE SW section 12-20-2w, topped Chat at 2,964 feet, had a hole full of water at 3,002 feet, total depth, plugged back to 2,993 feet, acidized and pumped 25 bbls. of oil daily.

Texas Co. No. 2 Carlson, SE SE NW section 24-19-3w, was moving in material.

Reno County

Olson Oil Co. and Shell Petroleum Corp. No. 3 Querfeld, SE NE SE section 27-23-4w, Burrton field, Reno County, had Chat pay at 3,314-34 feet, total depth 3,613 feet, plugged back to 3,400 feet, perforated casing, acidized and made potential of 222 bbls. of oil, with salt water.

Harvey County

One well was completed on the Harvey County side of the Burrton field at Olson Oil Co. and Shell Petroleum Corp. No. 1 Schrag, NW NW NE section 31-23-3w. It topped Chat at 3,274 feet, total depth 3,558 feet, was treated with acid and made potential of 280 bbls. of oil, with some water.

Inca Production Co. and others No. 1 Carey, NW NW SW section 29-23-3w, was building rig.

Estimated Daily Production

Estimated daily production of Kansas for the week ending November 27 and for the preceding week was as follows:

	Barrels	
	Nov. 27	Nov. 20
Oxford City	1,500	1,575
Burrton	10,100	10,225
Ritz-Canton	5,025	5,100
Graber	2,900	2,875
Hollow-Nikkel	2,550	2,600
Lerado	1,500	1,675
Voshell	2,300	2,275
Wellington	3,150	3,225
Ellsworth County:		
Lorraine	3,175	3,000
Other pools	1,200	1,140
Rice-Barton counties:		
Bloomer	3,800	3,450
Chase	6,750	6,700
Geneseo	2,300	2,450
Raymond	1,525	1,250
Silica	1,4050	12,550
Keesling	1,025	1,100
Hauschild	1,600	1,325
Miscellaneous Rice	8,060	8,700
Miscellaneous Barton	8,320	7,400
Russell County:		
Fairport	1,865	1,850
Gorham	1,775	1,690
Russell	1,915	1,675
Sullivan	6,925	6,700
North Trapp	11,195	13,790
Miscellaneous Russell	7,215	8,900
Sedgwick County:		
Valley Center	1,080	1,130
Miscellaneous	2,735	2,785
Ellis County:		
Bemis	7,575	4,825
Miscellaneous	3,200	3,180
Kingman County	620	620
Stafford County	2,870	2,535
Greenwood County	9,925	9,975
Butler County	16,125	16,100
Other fields	23,450	24,580
Total Kansas	179,300	178,950

Ellsworth County

Magnolia Petroleum Co. No. 1 Ehley, NW NW SE section 30-17-10w, was location for a new test in the Bloomer district, Ellsworth County.

Sedgwick County

Continental Oil Co. No. 2 Westerfield, NE SE SW section 16-25-1e, Goodrich area, Sedgwick County, found Misener sand at 3,337 feet, was bottomed at 3,338 feet, acidized and made potential of 127 bbls. of oil, with 760 bbls. of water, completed.

Butler County

National Refining Co. No. 3 McCullough, SE NE SW section 1-28-6, McCullough pool, Butler County, made potential of 394 bbls. of oil from Wilcox sand at 3,173-80 feet, total depth, completed.

Rex & Morris No. 1-B Smith, SW SE SW section 34-25-5, El Dorado area, was dry and abandoned at 2,602 feet, with nothing showing.

National Refining Co. No. 4 McCullough, SW NW SE section 1-28-6, had dug cellar.

Greenwood County

Superior Oil & Gas Co. No. 15 Jones, SE NE SW section 21-23-13, North Virgil area, Greenwood County, topped Mississippi lime at 1,683 feet, total depth 1,719 feet, was acidized and pumped 48 bbls. of oil in 24 hours, completed.

Henderson Oil Co. No. 1 Wilson, NW NW NE section 8-24-12, Hamilton area, had a hole full of water at 1,823 feet and was abandoned at 1,828 feet, total depth.

Woodson County

Frank Young No. 2-A Mudge, SE NW NE section 5-24-14, Woodson County, topped Mississippi lime at 1,697 feet, had pay at 1,719-28 feet, total depth, was acidized and pumped 63 bbls. of oil in 24 hours.

Marion County

Lariaux-Irwin No. 5 Merrilott, NW SE NW section 23-17-4e, Lost Springs sector, Marion County, had Chat at 2,328 feet, total depth 2,405 feet, plugged back to 2,373 feet, was acidized and pumped 45 bbls. of oil and 5 bbls. of water in 24 hours.

Cowley County

E. B. Shawver No. 2 fee, NE NE SE section 3-30-4e, Cowley County, found Bartlesville sand at 2,800 feet,

(Continued on Page 98)

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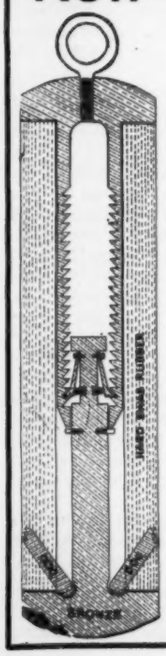

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The most efficient way of setting the plug is to lower it to the bottom of the well with the use of a measuring line, then if tubing is to be run, set the tubing on the plug regardless of the weight, this compresses the plug and throws the four dogs located near the bottom of the plug into the well walls and the rachets on the inner members hold the plug in this position for all time. Then pick the tubing up and begin the pumping operation, if tubing is not to be run the plug may be set by use of the drilling tools.
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Michigan Field Report

By
O. C. PRESSPRICH

EXTEND NEW BENTLEY POOL NORTH IN GLADWIN COUNTY

SAGINAW, Mich., Nov. 29.—After weeks of anxious waiting success apparently has crowned wildcat efforts to find paying oil production in Bentley and Secord townships, both in Gladwin County—to steal the spotlight away from a continuing string of Buckeye Township producers, which continue to develop on inside locations.

Durham & Jones No. 1 LaFurgey, SE SW NE section 20-17n-2e, developed a natural production estimated between 50 and 75 bbls. daily to bring the Bentley field into focus, with prospects of further development. The well extends proved territory in Bentley to the north, and is considered by operators to be a valuable wildcat test. In another section of the field, however, Chapman Oil Co. No. 1 State, N half NW NW section 33-17n-2e, was reported 100 feet in the Dundee limestone with no show of oil, and status of the well in doubt.

In the Secord Township area, focal point of interest through Whitehill, Clovis & Drury No. 1 Bosley, NE SE SE section 11-19n-1e, 9 miles northeast of the upper Buckeye pool, has been rating better than 150 bbls. daily with little water cutting into production. Operators are showing increased interest in the field, with M. F. Whitehill and others preparing to drill No. 1 Taylor, north of the Bosley well. At least two other companies are preparing to drill on nearby locations.

Meanwhile, hopes of linking the lower Buckeye (Oard) pool with the Bentley Township play, through the medium of Billings Township, hit a snag, when McClanahan Oil Co. No. 1 Reua Corp., NE NE SW section 11-17n-1e, drilled into water after passing an oil showing 90 feet in the Dundee, topped at 3,470 feet and bottomed at 3,728 feet. It is more than a mile to the east of two offset producers in section 9 and 10 of Billings.

North Buckeye

Sun Oil Co. not only took honors for the week with seven producers added to its chain, but also led with the prize producer of the week in the Buckeye field. All of the new wells, several of which were larger than normal for the area are in section 10, lying to the west of the discovery section, No. 11 in the north Buckeye field. To all appearances, at the rate section 10 is being developed, it soon will surpass section 11, which has practically an entire quarter-section undeveloped. Sun Oil Co.'s latest additions, which appear to be coming in with heavier production at each well, extends development operations materially westward in the field. Topping the week's producers is Sun Oil Co. No. 4 Luks, SW NW NE section 10-18n-1e, which produced 1,040 bbls. daily after acid. Others among the Sun's holdings which came in the past week were: No. 3 Luks, SE NW NE section 10, which was being tubed to treat with acid after 100 bbls. daily natural production; No. 7 Rabb, SE SE NW section 10, which received a 1,000-gallon acid shot and went to 350 bbls. a day; No. 8 Rabb, SE NE NE section 10, which developed 550 bbls. daily after a 100-gallon acid bath; No. 10 Rabb, NE SW NE section 10, which was tubing to treat with 2,500 feet of oil in the hole; No. 12 Rabb, NE SE NW section 10, which also was tubing to treat at 3,650 feet with the hole filled with oil; No. 8 Ockerman, NW NW SE, reported with 2,500 feet of oil in the hole, and preparing to drill in.

Other north field producers include Mammoth Producing & Refining Co. No. 2 Wood, NE NE SE section 4-18n-1w, which faced abandonment with only 200 feet of oil in the hole after acid. The test was a far western extension of the north part of the north Buckeye field.

Hart Oil Producing Co. No. 2 Soldan, SE NE SE section 12-18n-1w, plugged back and acidized, netting 125 bbls. production. C. W. Teater No. 4 Domokos, NW NW NW section 11-18n-1w, is to be acidized.

South Buckeye

Leading the parade of south field producers was R. F. Voorhees, Inc., No. 1 Beuhler, SE SW NE section 26-18n-1w, which was reported completed and good for 30 bbls. an hour. Gordon Oil Co. No. 6-A State, SW SE NE section 36-18n-1w, was on the pump for 125 bbls. daily. Other efforts near completion included Sun Oil Co. No. 1 Shumway, SW NW SE section 24-18n-1w, which developed a show of oil, and was awaiting completion this week. Bell & Blunt No. 3 McMahon, NW NW SE section 25-18n-1w, was reported on top of the Dundee and ready to drill in. Turner Petroleum Co. No. 3 McMahon, SW SE SW section 36-18n-1w, came in at 50 bbls. a day and was to be acidized. Mammoth Producing & Refining Co. No. 1 Oard, SW SW NE section 25-18n-1w, was preparing to make a deep test, possibly in the Monroe limestone after failure to make a show beyond 3,700 feet.

Arenac County—Clayton Township

Extension of the Clayton pool westward and northward was confirmed the past week when Swanson & Rowmor No. 1 Shepherd, NE SW SW section 4-20n-4e, had to be pinched in after a gauge of more than 700 bbls. daily. The flow was cut because of lack of storage space. The test provided much interest for operators, as it missed a pay high in the Dundee and encountered another at a depth of 202 feet in the Dundee stratum. Heretofore no Michigan well has produced from so great a depth in the limestone. Several shows and some small producers have logged oil rather deep in the Dundee, but none so prolific as the Shepherd well. Michigan Devonian company No. 3 Peavy, another test in section 4-20n-4e, rated a natural production of 200 bbls. Several other tests in the Clayton field are near completion.

Midland County—Edenville Township

Testing was in order in Midland County's latest "surprise," Sun Oil Co. No. 1-B State, C N half SE NE section 5-16n-1w, which was treated with a 2,000-gallon acid bath and was still testing. Favorable indications for a producer have been showing for two weeks, with the wildcat effort receiving considerable attention.

Montcalm County—Winfield Township

W. S. Taggart No. 1 Knapp, C NE section 17-12n-9w, came in as a favorable gasser the past week with a gauge of 1,050,000 feet of gas daily. The well hit the flow 5 feet into the pay at a depth of 1,140 feet.

Isabella County—Sherman Township

Two gas wells of ungauged production at present and a small oil producer was the record of the week for the Sherman field. Utilities Pipe Line Co. No. 1-A Mitchell, trustee, SE SE SE section 29-15n-6w, was drilling beyond 1,200 feet with small gas shows, and expecting the big flow momentarily. McClanahan Oil Co. No. 1 Terry, SE NW SE section 10-15n-6w, struck a flow of gas 1 foot in the pay and is running 5-inch casing. Pure Oil Co. No. 7-B McClintic, SW SW SW section 33-15n-6w, was completed for an initial oil flow of 135 bbls. daily.

Tuscola County

What appeared as the hope of Tuscola County operators for an oil strike in the Thumb district was Brehm & Jaenicke No. 1 Boyce, SE NW SW section 24-14n-7e, which developed a show of oil in the hole, and still was testing.

Another Tuscola test was chalked up a failure when J. C. Arthur and Frank Norton No. 1 Voorhees suspended operations deep in the Dundee stratum. The test was near Wilmot.

Southwest Texas Fields

(Continued from Page 78)

McMullen County, Ezzell field: R. P. Holland No. 1 Plecker, 1,488 feet, 102 bbls., open tubing, jetting; E. M. Jones No. 1-B Ezzell, 1,559 feet, 179 bbls., pumping; E. M. Jones No. 2-B Ezzell, 1,541 feet, 246 bbls.; E. M. Jones No. 3-B Ezzell, 1,523 feet, 336 bbls., pumping. Jacob field: Agarito Oil Co. No. 1-A Lark, 972 feet, 12 bbls., pumping.

Nueces County, Flour Bluff field: Humble Oil & Refining Co. No. 7 Gulden, 6,656 feet, 190 bbls., one-eighth inch choke; Humble Oil & Refining Co. No. 9 Webb, 6,656 feet, 143 bbls., one-eighth inch choke. Saxet field: Richardson Petroleum Co. No. 11 Sedwick, 7,365 feet, 145 bbls.; Southern Minerals Corp., 4,871 feet, 61 bbls.; Sultex Oil Co. No. 5 Vance, 8,229 feet, perforations at 3,990-78 feet, gas well.

San Patricio County, Plymouth field: Magnolia Petroleum Co. No. 13 Corpus Christi Bank & Trust Co., 5,887 feet, 110 bbls. through seven-sixty-fourths inch choke. Taft field: Humble Oil & Refining Co. No. 32 Mayo, 3,992, 195 bbls., three-sixteenths inch choke.

Starr County, Barbacoas field: K. E. Merren and others No. 1-A Starr County Cattle Co., 5,640 feet, abandoned.

Webb County, Killam field: Killam No. 2 Garcia-Villareal, 1,986 feet, 95 bbls., pumping; Bridwell Oil Co. No. 11 Martin, 1,903 feet, 150 bbls., pumping. Oilton field: Bridwell Oil Co. No. 12 Martin, 1,901 feet, 145 bbls., pumping; Cox & Hamon No. 2 Garcia, 1,906 feet, 145 bbls., pumping; Cox & Hamon No. 3 Garcia, 1,896 feet, 155 bbls., pumping; Cox & Hamon No. 2 Martin, 1,953 feet, 120 bbls., pumping; Hamil & Smith No. 5 Martin, 1,892 feet, 80 bbls., one-half inch choke; Moore, trustee, No. 1 Laredo National Bank, 1,924 feet, 150 bbls., pumping; Rowan & Hope No. 12 Laurel, 1,929 feet, 105 bbls., pumping.

Zapata County, Escobas field: Texas Co. No. 110 Jennings, 1,227 feet, 40 bbls., pumping. Lopena field: William Winn No. 1 Ramirez, 2,300 feet, gas well.

WILDCAT COMPLETIONS

Dewitt County

Ike Howeth No. 1 Gips, 4,315 feet, dry and abandoned.

Live Oak County

L. Franklin No. 1 Odem, 2,031 feet, dry and abandoned.

McMullen County

Adams & LeFevre No. 2 Sellem, 2,957 feet, dry and abandoned. Gilcrease Oil Co. No. 1 A. C. Metrs, 2,737 feet, dry and abandoned.

Milam County

Kingdor Exploration Co. No. 1 Stidham, 3,776 feet, dry and abandoned.

Nueces County

Southern Minerals Corp. No. 2 King, 6,219 feet, perforations at 4,017-20 feet, 310 bbls. of fluid, 25 per cent oil, 75 per cent salt water.

Starr County

Calderoni-James and others No. 1 Rodriquez, 1,756 feet, dry and abandoned.

Rocky Mountain Area

By
T. R. INGRAM

LARGE GASSER IN DAGGETT COUNTY, NORTHEAST UTAH

DENVER, Colo., Nov. 29.—Colorado had no completions or new operations in the past week.

In Wyoming, the Ohio Oil Co. and California Co. completed their No. 3-A Kyle on the west flank of Big Medicine Bow for 240 bbls. per day in the upper Sundance. The Superior Oil Co. No. 1 Christensen, in Carbon County, and the Mountain Fuel Supply Co. No. 1 Williams, both on the Cherokee Ridge fold 25 miles apart, tested the Wasatch and were abandoned.

Montana had one new operation in the Cut Bank field, one gas well and one dry hole in Kevin-Sunburst.

The Mountain Fuel Supply Co. No. 1 Smith, a mile west of nearest producer in Clay Basin, Daggett County, northeastern Utah, was completed for 21,000,000 feet of gas per day.

NEW MEXICO

Opening of a new producing area 2 miles northwest of the Mattix district of Lea County was indicated at Repollo Oil Co. No. 1 Cowden, NE cor. section 31-23-37, which swabbed 40 to 60 bbls. of oil daily from sand, following a shot. It was plugged back to 3,570 feet from 3,850 feet, total depth, to shut off water found at 3,840 feet to bottom. The wildcat is 3 miles northeast of the Cooper lime pool.

Two new wildcats in Otero County, on a 28,000-acre block, were announced. One, Fred Turner, Jr. No. 1 Ella Everett, C SE SE section 34-22-13, was spudded with water well machine and was shut down while derrick was being erected. The other, Fred Turner, Jr. No. 1 H. V. Everett, C SE SE section 28-22-13, was a location. The No. 1 Ella Everett is about 12 miles northeast of the same operator's No. 1 Evans, in section 22-25-12, which was abandoned after plugging back from 3,763 feet to about 2,000 feet, without success.

Completions of the week in Lea County included six oil wells and two failures.

Continental Oil Co. No. 5-A-14 Sanderson, NE NE NW section 14-20-36, flowed 45 bbls. of oil an hour through choke, naturally. Gas gauged 1,450,000 feet. Pay was topped at 3,790 feet and the hole was bottomed at 3,873 feet.

Stanolind Oil & Gas Co. No. 11-A Gilluly, C SW NE section 24-20-36, topped pay at 3,800 feet, total depth 3,871 feet, was treated with acid and flowed 168 bbls. of oil in 24 hours. Gas volume was 510,000 feet.

Amerada Petroleum Corp. No. 1 Stuart, C W half NW NW section 14-25-37, flowed 92 bbls. of oil through choke in eight hours after shot, with 455,000 feet of gas. Top of pay was 3,390 feet, total depth 3,423 feet.

Shell Petroleum Corp. No. 2 Rinewalt, C NE NW section 4-22-37, found pay at 3,680 feet, was bottomed at 3,760 feet, and flowed 39 bbls. of oil in six hours through choke.

W. H. Street No. 2 Woods-State, C SW NE section 22-22-37, was shot and flowed 115 bbls. of oil daily through choke, with 1,500,000 feet of gas. Top of pay was 3,562 feet, total depth 3,692 feet.

Herschback Oil Co. No. 1 Alexander, C NE SW section 5-21-37, had pay at 3,670 feet, total depth 3,760 feet, was shot and flowed 32 bbls. of oil in eight hours through tubing.

Crandall, Osmond & Maxwell No. 1 Maxwell Permit, C SE SE section 2-11-36, was bottomed at 5,301 feet in sand, sulfur water intruded at 5,270-85 feet, and it was dry and abandoned.

Humble Oil & Refining Co. No. 2 Saunders, C NW NW section 9-22-34, was dry and abandoned when water intruded at 4,265 feet, total depth.

Lea County

Amerada Pet. Corp. No. 6 Byrd, SE sec. 12-20-36. Loc.
Amerada Pet. Corp. No. 2 Corrigan, C S½ SE NE sec. 4-22-37. Drlg. 1,290 ft.
Amerada Pet. Corp. No. 3 Laughlin, C NW NE sec. 9-20-37. T.D. 2,585 ft.; set 8-in. 2,573 ft.
Anderson-Prichard Oil Corp. No. 1 Wells, C SE SE sec. 5-27-37. Drlg. 3,575 ft.
Anderson-Prichard Oil Corp. No. 2 Langlie, SE sec. 8-25-37. Drlg. 3,290 ft.
Anderson-Prichard Oil Corp. No. 3 Langlie, NE sec. 8-25-37. T.D. 3,479 ft.; flwd. 5 B.O. hrly.
Atlantic Ref. Co. No. 1 Grizzell, C SE NE sec. 6-22-37. Loc.
Barnsdall Oil Co. No. 1 Whitten, NE NE NW sec. 4-24-36. R.U.R.
Cities Service Oil Co. No. 8 Closson, C W½ NE sec. 6-22-36. Drlg. 1,512 ft.
Cities Service Oil Co. No. 1-H State, C NE NE sec. 17-22-36. T.D. 3,884 ft.; prep. to deepen.
Cities Service Oil Co. No. 1-A Closson, C NE NE sec. 18-22-36. Wildcat; T.D. 3,559 ft.; fsg.
Continental Oil Co. No. 2-B-6 Elliott, C NW SW sec. 6-22-37. T.D. 3,788 ft.; tstg.
Continental Oil Co. No. 3-B-6 Elliott, C SE SE sec. 6-22-37. Drlg. 3,610 ft.
Continental Oil Co. No. 1-B-10 Britt, SW sec. 10-20-37. T.D. 3,921 ft.; flwd. 360 bbls. fluid in 2 hrs.
Continental Oil Co. No. 3-B-31 Lockhart, SE sec. 31-21-36. T.D. 3,924 ft.; flwd. 22 B.O.P.H.
Continental Oil Co. No. 1-A Jack, C SW SW sec. 21-24-37. T.D. 3,556 ft.; flwd. 16 B.O.P.H.; C.O.
Continental Oil Co. No. 2-B-24 Reed, SW sec. 24-20-36. Drlg. 3,220 ft.
Continental Oil Co. No. 6-A-14 Sanderson, SE sec. 14-20-36. Drlg. 3,759 ft.
Continental Oil Co. No. 1-A-7 State, SE sec. 7-19-37. T.D. 3,845 ft.; set 5½-in. 3,843 ft.
Continental Oil Co. No. 2-E-17 State, C NE SE sec. 17-22-36. T.D. 1,481 ft.; rng. csg.
Continental Oil Co. No. 6-A-17 State, C NW NE sec. 17-19-37. Drlg. 2,906 ft.
Cranfill & Germany No. 1 Weir, C NE NE sec. 15-20-37. T.D. 4,210 ft.; S.D.O.
Culbertson & Irwin No. 1 Alston, NW cor. sec. 26-25-37. T.D. 1,218 ft.; set 8¼-in. 1,217 ft.
Culbertson & Irwin No. 4-A Humphrey, NE SE NW sec. 3-25-37. Cellar and pits.
Culbertson & Irwin No. 5-A Humphrey, NE NW SE sec. 3-25-37. Cellar, pits.
Culbertson & Irwin No. 7-A Humphrey, NE SW SE sec. 3-25-37. Loc.
Eastland Oil Co. No. 1 Waldrop, C SE SE sec. 1-20-38. T.D. 1,430 ft.; S.D.; repairs.
L. E. Elliott No. 1 Elliott, NE NE SE sec. 26-20-36. Cellar and pits.
Emperor Oil Co. No. 1 Johns, C SW NW sec. 24-17-32. Drlg. 4,267 ft.
Empire O. & R. Co. No. 1-G State, sec. 2-21-36. T.D. 3,900 ft.; S.D.
Empire O. & R. Co. No. 2-B State, C SE SW sec. 2-21-37. Drlg. 3,850 ft.
J. E. Farrell No. 2-C Walden, C SE SW sec. 15-22-37. Drlg. 3,665 ft.
Great Western Prod. Co. No. 1 State, C SE SE sec. 16-26-37. O.W.D.D.; T.D. 3,315 ft.; S.I.
Gulf Oil Corp. No. 1 Boyd, sec. 23-22-37. T.D. 3,681 ft.; tstg.
Gulf Oil Corp. No. 2 Cole, C NE NE sec. 16-22-37. T.D. 1,141 ft.; S.D.
Gulf Oil Corp. No. 1 Elliott, SW SE SE sec. 15-25-37. Drlg. 3,380 ft.
Gulf Oil Corp. No. 1-E Janda-State, NE NW NE sec. 21-23-36. T.D. 3,590 ft.; set 5½-in. 3,583 ft.
Gulf Oil Corp. No. 1 LeMunyon, C NE NE sec. 28-23-37. Old well; T.D. 2,878 ft.; to test.
Gulf Oil Corp. No. 1-B Stebbins, NE sec. 5-22-37. T.D. 3,755 ft.; swbg.
Gulf Oil Corp. No. 2-B Stebbins, C NW NE sec. 5-22-37. Drk.
Gulf Oil Corp. No. 1 Felton, C SE SE sec. 28-21-36. T.D. 3,885 ft.; flwd. 436 B.O. in 21 hrs.; tstg.
Gulf Oil Corp. No. 3 Stuart, C SE NE sec. 10-25-37. Drlg. 1,280 ft.
Gulf Oil Corp. No. 1-B White, SE sec. 35-20-36. Drk.
Herschback Oil Co. No. 1 Burleson, C E½ NE NW sec. 8-25-37. Drlg. 1,290 ft.
Humble O. & R. Co. No. 3 Williams, C SW NW sec. 34-24-37. T.D. 3,532 ft.
Humble O. & R. Co. No. 3 Fopeano, C SW SW sec. 25-20-36. Drlg. 1,942 ft.
Jal Nat. Gas Corp. No. 2 Justis, NE sec. 20-25-37. T.D. 3,029 ft.; tstg.
Carl B. King No. 1 Stuart, NW SW SW sec. 11-25-37. T.D. 3,317 ft.; set 5½-in. 3,287 ft.
Landreth Prod. Co. No. 2 Grizzell, C SW NE sec. 8-22-37. Drlg. 3,120 ft.
Harry Leonard No. 4 Lanehard, SW NW NE sec. 21-25-37. Drlg. 1,000 ft.
Magnolia Pet. Co. No. 1 State G, NW NW NE sec. 34-17-34. T.D. 4,905 ft.; P.B. 4,794 ft.
Magnolia Pet. Co. No. 2 State-Bridges, sec. 14-17-34. T.D. 4,593 ft.; flw. 51 B.O. in 1 hr., naturally.
Magnolia Pet. Co. No. 3 State-Bridges, C NW SW sec. 23-17-34. T.D. 465 ft.; C.O.
J. A. Mascho No. 1 Cloyd, C SE SE sec. 20-22-33. Wildcat; T.D. 3,523 ft.; S.D. for csg.
McDonald & Weiner No. 1 Elliott, SE cor. sec. 19-21-37. T.D. 3,778 ft.; swbg. 25 B.O.P.D.; to shoot.
C. T. McLaughlin No. 1 Polhamus, NE sec. 9-24-37. T.D. 3,345 ft.; R.U. spudder.
C. T. McLaughlin No. 1 Imperial Royalties, NW SE NW sec. 9-24-37. R.U.R.
Mid-Continent Pet. Corp. No. 2 Boren, C SE NE sec. 20-22-36. T.D. 3,852 ft.; flwd. 40 B.O.P.D.; tstg.
National Drlg. & Prod. Co. No. 1 Flint, C NE NE sec. 29-20-34. Wildcat; drlg. 3,653 ft.
Ohio Oil Co. No. 2 Grizzell, C NW SE sec. 5-22-37. T.D. 3,600 ft.; prep. to drill in.
Ohio Oil Co. No. 1 Hardy, NE NE SE sec. 20-21-37. T.D. 3,603 ft.; S.D.; repairs.
Ohio Oil Co. No. 1 Kutter D, C SW SW sec. 18-19-37. Drlg. 3,535 ft.
Ohio Oil Co. No. 7 State-McDonald, C SW SE sec. 16-22-36. T.D. 3,871 ft.; C.O.
Lem Peters No. 1 Graham, sec. 27-22-37. T.D. 1,118 ft.; fsg.
Plains Prod. Co. No. 1 Humphreys, NE sec. 3-25-37. Loc.
Plains Prod. Co. No. 2 Moseley, SW NE SE sec. 34-24-37. Mach.
Plains Prod. Co. No. 1 Stuart, NE SW SW sec. 10-25-37. T.D. 3,420 ft.; swbg.
Repollo Oil Co. No. 1 Powhatan Carter, SW SW NE sec. 6-24-37. Drlg. 2,090 ft.
Repollo Oil Co. No. 3 Christmas, NW NW NE sec. 28-22-37. T.D. 1,650 ft.; S.D.O.
Repollo Oil Co. No. 1 Cowden, NE cor. sec. 31-23-37 T.D. 3,850 ft.; P.B. 3,570 ft.; C.O.
Repollo Oil Co. No. 3 Moseley, SW sec. 34-24-37. Drlg. 2,795 ft.
Repollo Oil Co. No. 4 Roach, NW NW SW sec. 21-20-37 T.D. 3,875 ft.; P.B. 3,860 ft.; shot; W.O.S.T.
Repollo Oil Co. No. 1-B State, NE NE NW sec. 7-22-36. T.D. 1,643 ft.; rng. csg.
Repollo Oil Co. No. 1 Turner, sec. 29-21-37. Drlg. 3,520 ft.
Repollo Oil Co. No. 2-B Whitten, NE cor. sec. 4-24-36. Loc.
Rowan Drlg. Co. No. 2 Elliott B, C NW NW sec. 9-22-37. Drlg. 3,120 ft.
Rowan Drlg. Co. No. 2-A Elliott, C NE SW sec. 27-22-37. Drk.
Rowan Drlg. Co. No. 2-A Elliott, C NE SW sec. 27-22-37. Drk.
Samedan Oil Co. No. 4 Hughes, C NW SE sec. 10-23-37. Drlg. 3,375 ft.
Shell Pet. Corp. No. 3 Black, SE SE SW sec. 21-24-37. T.D. 3,565 ft.; S.D.O.
Shell Pet. Corp. and Devonian Oil Co. No. 3 Christmas, C SW NE sec. 21-22-36. T.D. 3,855 ft.; P.B. 3,840 ft.; R.U.S.T.
Shell Pet. Corp. No. 2-L Endura-State, NE SE SE sec. 1-21-35. Drlg. 1,254 ft.
Shell Pet. Corp. No. 4-E State, C SW NW sec. 12-20-36. Drlg. 3,777 ft.
Shell Pet. Corp. No. 3-J State, SE cor. sec. 32-20-37. R.U.R.
Skelly Oil Co. No. 1-J State, C NE NW sec. 31-17-35. T.D. 183 ft.; set csg.
Skelly Oil Co. No. 5 J. B. Baker, C SE NW sec. 27-22-37. T.D. 3,620 ft.; tstg.
Skelly Oil Co. No. 1 Combest, NW NW SE sec. 27-23-36. Coring 3,720 ft.
Skelly Oil Co. No. 1 E. T. Johns, SW sec. 21-24-37. Drlg. 2,702 ft.
Skelly Oil Co. No. 2 Mon-State, C NE SE sec. 13-19-36. T.D. 3,820 ft.; set 7-in. csg.
Skelly Oil Co. No. 3 G. W. Sims, C NW NE sec. 9-23-37. T.D. 3,642 ft.; C.O.
Skelly Oil Co. No. 1-C R. R. Sims, sec. 3-23-37. Drlg. 3,622 ft.
Skelly Oil Co. No. 1-E W. P. Sims, C NW NE sec. 10-23-37. T.D. 3,625 ft.; flw. 452 bbls. in 24 hrs.
Skelly Oil Co. No. 2 W. P. Sims, C SE NE sec. 10-23-37. Drlg. 3,497 ft.
Stanolind O. & G. Co. No. 29-B Farnsworth, C SW NW sec. 7-26-37. Drlg. 2,840 ft.
Stanolind O. & G. Co. No. 10-A Gilluly, SE SE NE sec. 24-20-36. T.D. 3,865 ft.; top pay 3,800 ft.; F. 75 B.O. in 3 hrs.; testing.
Stanolind O. & G. Co. No. 2-A Langlie, C NW SW sec. 9-25-37. T.D. 3,463 ft.; swb. 48 B.O. in 8 hrs.; C.O.
Stanolind O. & G. Co. No. 1-A Hill, C NW SE sec. 6-21-37. T.D. 1,380 ft.; running csg.
Stanolind O. & G. Co. No. 1-B Hill, NE sec. 6-21-37. Drlg. 3,690 ft.
Stanolind O. & G. Co. No. 2-B Langlie, C NW NW sec. 15-25-37. T.D. 3,458 ft.; P.B. 3,147 ft.; S.I.
Stanolind O. & G. Co. No. 2-A Myers, C SW SW sec. 15-24-37. M.I.M.
Stanolind O. & G. Co. No. 3-A Myers, C SW SE sec. 22-24-37. T.D. 3,580 ft.; flwd. 89 B.O. in 24 hrs.; to shoot.
Stanolind O. & G. Co. No. 1 State, C SE SE sec. 2-21-36. T.D. 3,854 ft.; flwd. 50 B.O.P.D.; to pump.
Stanolind O. & G. Co. No. 1 Thompson, NE sec. 6-21-27. Drlg. 1,642 ft.
W. H. Street No. 3 Woods, C NW NE sec. 22-22-37. T.D. 265 ft.; set 12½-in. csg.
Sun Oil Co. No. 2 Lanehart, C NE SE sec. 20-25-37. Drlg. 640 ft.
Texas Co. No. 1 American National, C NE NW sec. 18-19-37. Drlg. 1,310 ft.
Texas Co. No. 2 Fristoe, NW NE NE sec. 3-25-37. Drlg. 2,730 ft.
Texas Co. No. 2-B State, SE sec. 16-23-36. Drlg. 3,656 ft.
Texas Co. No. 6-C State, NE sec. 19-20-37. Drlg. 3,746 ft.
Texas Co. No. 1-L State, C SW NE sec. 1-18-34. T.D. 4,500 ft.; F. 290 B.O. in 11½ hrs.
Texas Co. No. 2 Falvy, C NW NW sec. 8-22-37. T.D. 3,592 ft.; fsg.
Two States Oil Co. No. 1 Morris, SW SE SE sec. 21-18-38. T.D. 4,103 ft.; set 7-in. 4,097 ft.
Western Gas Co. No. 1 Cowden, SE cor. sec. 30-23-37. R.U.R.
Williams & Cockburn No. 3 Miller, C SW SW sec. 23-17-32. T.D. 3,880 ft.; S.D.O.

Eddy County

F. E. Baker No. 1 Eddy, NE sec. 12-22-27. Drlg. 694 ft.
Barnett Oil Dev. Co. No. 1 King Permit, C NW SE sec. 23-26-30. R.U. and S.D.
Fred Brainerd No. 2 Brainerd, sec 5-18-27. T.D. 1,824 ft.; shot; flwd. 25 B.O.P.D.; tstg.
Ed Bryant No. 1 Stebbins, C NE SW sec. 19-20-29. T.D. 1,000 ft.; S.D.O.

Carper Drlg. Co. No. 2 Gissler, SW SE NW sec. 23-17-30. Drlg. 3,535 ft.
Danciger O. & R. Co. No. 3 Turner, SW NE SW sec. 18-17-31. T.D. 3,154 ft.; set 7-in. 3,150 ft.
D. & B. Oil Co. No. 2 Jenkins, SW NW NW sec. 20-17-30. Drlg. 2,075 ft.
Emperor Oil Co. No. 3 Puckett, C NE NW sec. 24-17-31. T.D. 3,908 ft.; F. 60 B.O.P.D.; 1,500,000 ft. gas.
Etz Bros. No. 4 State, C S½ SE SE sec. 16-17-30. T.D. 2,550 ft.; running csg.
Finley & Cherry No. 1 Buchley, C NW NW sec. 28-16-31. Wildcat; T.D. 3,750 ft.; S.D. repairs.
Flint Prod. Co. No. 1-B State, SE sec. 20-17-30. Drlg. 3,800 ft.
Franklin Pet. Corp. No. 1 McIntyre, NE NW SW sec. 20-17-30. Drlg. 2,475 ft.
C. J. Frederick No. 1 Reed, C NE SW sec. 28-24-28. Drlg. 835 ft.
F. W. & Y. Oil Co. No. 6-A Gissler, NE sec. 23-17-30. Drlg. 3,215 ft.
F. W. & Y. Oil Co. No. 7-A Gissler, NE sec. 23-17-30. Drlg. 3,420 ft.
F. W. & Y. Oil Co. No. 1-B Gissler, SW sec. 14-17-30. Loc.
F. W. & Y. Oil Co. No. 2-B Gissler, C NW NW sec. 24-17-30. Preparing to spud.
F. W. & Y. Oil Co. No. 3 Jackson, C NW SE sec. 13-17-30. T.D. 2,953 ft.; fsg.
Geo. F. Getty, Inc., No. 1-E State, NE SW SW sec. 16-17-31. T.O. 2,210 ft.; S.D. repairs.
Grayburg Oil Co. No. 9 Burch, SW NE NE sec. 19-17-30. Drlg. 2,936 ft.
Grayburg Oil Co. No. 10 Burch, SE NE NE sec. 19-17-30. Drlg. 670 ft.
Grayburg Oil Co. No. 4 Keely, SE sec. 24-17-9. Cellar and pits.
M. A. Grisham No. 1 Chaytor, NE sec. 10-24-26. Drlg. 1,160 ft.
H. A. Hartwell No. 1 Vandagrift, NE NE SE sec. 8-18-27. Loc.
R. L. Holcomb No. 1 State, NW sec. 22-17-28. T.D. 455 ft.; S.D.
Woodworth Hawkins No. 1 Mack, C SW SW sec. 20-24-27. T.D. 335 ft.; fishing.
C. F. Ingram No. 1 Page, NE NE SW sec. 15-21-28. T.D. 1,310 ft.; S.D.O.
Nash-Windfohr & Brown No. 4-A Jackson, NE sec. 13-17-30. T.D. 3,541 ft.; acidized; swb. 32 B.O.P.D.
Nash-Windfohr & Brown No. 5-A Jackson, NE sec. 13-17-30. Drlg. 3,400 ft.
Nash-Windfohr & Brown No. 6-A Jackson, SE sec. 13-17-30. Drlg. 3,140 ft.
Nash-Windfohr & Brown No. 7-A Jackson, SE sec. 13-17-30. Drlg. 3,292 ft.
Nash-Windfohr & Brown No. 2-B Stevens, NW sec. 13-17-30. Rig.
W. A. Nichols No. 1 Johnson, NE sec. 35-16-21. Wildcat; drlg. 3,776 ft.; est. 40 B.O.P.D.
Red Gulch Oil Co. No. 1 State, C S½ SE SE sec. 4-17-28. Drlg. 900 ft.
Red Lake Oil Co. No. 1 Williams, C SW NW sec. 21-17-28. T.D. 450 ft.; running csg.
Repollo Oil Co. No. 3-D McIntyre, SE cor. sec. 17-17-30. Moving in tools.
Repollo Oil Co. No. 1-A Parke, NW NE NE sec. 22-17-30. Drlg. 1,585 ft.
Repollo Oil Co. No. 2 West, SW SE SE sec. 9-17-31. Drlg. 2,364 ft.
Paul Sargent No. 1 State, NE sec. 16-17-31. T.D. 3,749 ft.; P.B. 3,745 ft.; tstg.
R. A. Shugart No. 1 Coulthard, C NW SW sec. 35-18-31. T.D. 3,560 ft.; est. 30 B.O.P.D.; fsg.
W. K. Royalty No. 2 State, C NE NW sec. 16-17-31. Cellar.
W. O. Snyder No. 1 Pecos Irrigation, C NE SE sec. 15-25-28. Drlg. 2,493 ft.

Chaves County

English & Hamon No. 11 Billingslea, SE sec. 9-15-29. T.D. 3,654 ft.; 3,300 ft.; wtr.; S.D.O.
E. J. Fisher No. 1 Etz Permit, NE sec. 23-7s-26. Drlg. 275 ft.
Mathieson et al No. 1 Cole, C NE NW sec. 19-15-27. Drlg. 875 ft.

Curry County

Bond & Harrison No. 1 Hart ranch, C NW SE sec. 13-2n-31. T.D. 3,258 ft.; S.D.O.

De Baca County

Land Owners Oil Co. No. 1 McAdoo, SW cor. sec. 16-1s-27e. O.W. prep. to deepen from 5,850 ft.

Dona Ana County

Juels C. Bertrand No. 1 Casad Permit, sec. 24-26-5e. T.D. 47 ft.; S.D.O.

McKinley County

S. Dysart No. 1 Govt., NE sec. 14-14-10w. T.D. 1,390 ft.; fsg.

Otero County

George Mulvey No. 1 State, SW cor. sec. 11-25-8. T.D. 263 ft.; S.D.
Fred Turner, Jr., No. 1 Ella Everett, C SE SE sec. 34-22-13. Spd. and S.D.
Fred Turner, Jr., No. 1 H. V. Everett, C SE SE sec. 28-22-13. Loc.

Roosevelt County

C. S. Peterson and Conquistadores Oil Co. No. 1 Good, NW SE SE sec. 28-5s-30. Drlg. 360 ft.

NORTHWEST NEW MEXICO

Bernalillo County

Norins Realty Co., Inc., No. 2 North Albuquerque, NE SE NW sec. 19-11n-4e. S.D. 3,750 ft. for csg.

McKinley County

Guarantee Oil Co. No. 1 fee, NW NW NW sec. 31-20n-9w. S.D. 327 ft.
S. Dysart et al No. 1 Bouton, CEL NW NE sec. 14-14n-10w. T.D. 1,390 ft.; re-ran 12½-in. to 1,320 ft. and S.D.

San Juan County

The Angel Peak Oil Co. No. 7 Government, Lot 2, NW SE section 11-28n-11w, Kutz Canon district, which has been shut down since last January at 1,160 feet, has been plugged and abandoned at that depth.

Jack Amenda's No. 4 Hart, NW NE SW section 25-30n-12w, was plugged and abandoned at 2,048 feet.

Continental Oil Co. No. 67 Rattlesnake, C SE section 2-29n-19w. Spdg. 40 ft.; (first report).
Continental Oil Co. No. 66, SE NW NE sec. 2-29n-19w. Drlg. 760 ft.

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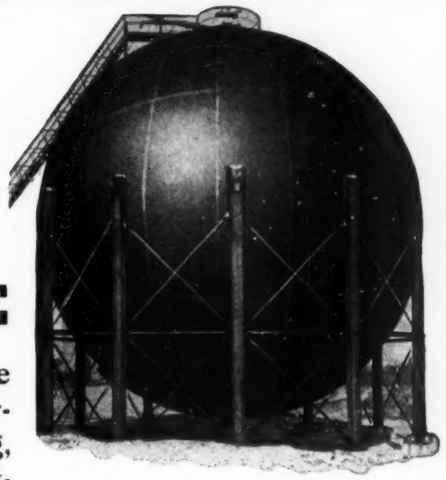

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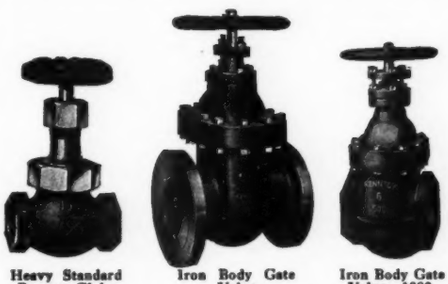

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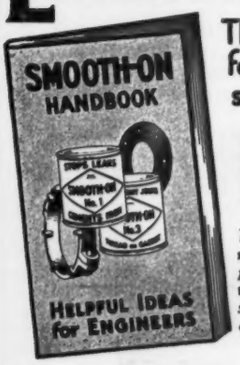

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Anna Oil Corp. No. 6 Govt., SW NE NE sec. 33-30n-11w. Drlg. below 1,000 ft.

Socorro County

Central New Mexico Oil Co. No. 1 Brown, SE NW sec. 16-3n-1e. Drlg. 1,600 ft.

Valencia County

C. A. Brober et al No. 1 Fuqua, NE NE sec. 19-5n-3e. S.D. 900 ft.; chge. to rotary.

Big Three Oil Co. No. 1 Dalles Townsite, SE SE NW sec. 5-6n-1e. T.D. 6,114 ft.; cmtd. 4-in. liner at 5,974 ft.; W.O.C.

COLORADO

Adams County

Oklahoma Oil Co. No. 1 Baxter, C SW sec. 2-3s-66w. S.D. 4,555 ft.

Glenridge Oil Corp. No. 1 Hills, SE SE SE sec. 27-3s-64w. S.D. 4,345 ft.

Archuleta County

Prospect Oil Synd. No. 2 Lena M. Garnett, NW SW NE sec. 13-33n-2e. Drlg. 476 ft. in gravel.

Boulder County

J. B. Furstenberg No. 1 Foote, SE sec. 20-1n-70w. Drlg. 2,825 ft. in Hygiene.

Boulder Prod. & Ref. Co. No. 11 Harlow Est., SE NE sec. 36-2n-71w. S.D.O. 765 ft.; dry in Muddy.

Garfield County

Roaring Fork Oil Co. No. 1 Patterson, C NE sec. 36-7s-88w. Drlg. 705 ft. in sh. and L.; not yet in Big L.

Huerfano County

S. W. Pressey No. 1 Ojo, SW NE sec. 10-29s-69w. T.D. 3,550 ft.; cmtg. caves.

S. W. Pressey No. 2 Alamo, C SW SE sec. 3-27n-68w. Setting csg. at 450 ft.

Grand County

Interstate O. & R. Co. No. 1 Hinman, NE SE NW sec. 11-2n-81w. S.D. 2,230 ft.

Jackson County

Colorado Oil Ref. Co. No. 1 North Park Coal, NW NW sec. 18-9n-78w. S.D. 3,015 ft.

LaPlata County

N. Spatter No. 1 Bryce, SE SW SW sec. 31-33n-9w. Drlg. below 1,000 ft.; 10-in. at 802 ft.

Larimer County

Great West O. & G. Corp. No. 1 Haworth, C SW SE sec. 16-4n-69w. S.D. 3,865 ft. to tst. W.S.O.

Las Animas County

Garcia Corp. No. 1 McClung, NE NW SE sec. 19-33s-61w. Drlg. 2,100 ft.; O.W.D.D. from 1,816 ft.

Lincoln County

Consolidated Smelting & Metals Corp. No. 1 Hancock, NE NE SW sec. 7-17s-52w. T.D. 2,860 ft.; fsg.; parted 8¼-in.

Gulf Oil Corp. No. 1 Smith, C SW SE sec. 19-15s-53w. Drlg. hard L. 6,763 ft.

Logan County

Transylvania Dev. Co. No. 1 Sheldon, SE NW SE sec. 3-10n-55w. Dk. up. (Cor. loc.)

Mesa County

Midwest Drlg. & Dev. Co. No. 1 Callahan, NE NW SE sec. 30-8s-97w. T.D. 3,337 ft.; fsg.; increase in S.G. and brownish-green oil; installed new line and prep. to go to Dakotas.

Continental Oil Co. et al No. 1 Miller, SW SW NW sec. 36-8s-91w. Cmtd. 13⅜-in. at 630 ft. with 480 sacks and S.D. for winter.

Moffat County

Morapas Pet. Co. No. 1 Coles, SW SW SE sec. 1-3n-92w. T.D. 2,670 ft.; rng. 8¼-in.

Kerr-Lynn Drlg. Co. No. 1 Denise, C SE SE sec. 19-9n-99w. T.D. 3,007 ft.; still in Wasatch; pulled 10-in. 1,355 ft.; 12½-in. in hole and S.D. for winter.

Montezuma County

McElmo Oil Co. No. 1 West, NE NW NW sec. 31-36n-17w. T.D. 3,830 ft.; rmg. at 3,790 ft. to test 4½-in. on bttm.; making about 3 B.P.D. 45-grav. oil.; 830 ft. in Penn.

Park County

South Park Oil Co. No. 1 State, SE SE SW sec. 16-11s-75w. S.D. 5,705 ft. for winter.

South Park Oil Co. No. 1 Lemar, NE NE SE sec. 34-11s-75w. Drlg. 5,393 ft.

Pitkin County

Glenco Dev. Co. No. 1 Govt., NW cor. sec. 9-10s-89w. Drlg. 1,620 ft.

Pueblo County

Ed Solomon No. 1 Smith, E½ sec. 11-21s-60w. Bldg. rig.

Rio Blanco County

Buford Oil Co. No. 1 Govt., C SW SW sec. 16-1n-91w. S.D. 2,135 ft.; M.I. 8¼-in.

Texas Co. and California Co. No. 1 Unit, SW SE NW sec. 35-3n-94w. Drlg. hard white L. 6,360 ft.

Major Oil Reserve No. 1 State, SW NW sec. 17-6n-86w. M.I.M.; (first report).

Craig & Moore No. 1 Erwin, C SW NE sec. 33-7n-85w. R.U.C.T.; will spd.

WYOMING

Albany County

Murphy Oil Co. No. 11 Holst, NE SW NE sec. 13-17n-77w. Drlg. gr. sh. and shells 1,013 ft.

Wyco Oil Co., Inc., No. 3 Chappel, NE NE NW sec. 33-21n-76w. Drlg. 1,625 ft.; gas in Wall Creek 685-711 ft. not tstd.

Ohio Oil Co. No. 2 Griffin, SW SE SW sec. 2-21n-77w. Drlg. 2,376 ft.; top r.b. 2,071 ft.

Murphy Oil Co. No. 2 Holst-Woolf, NE NW NW sec. 19-17n-76w. Drlg. 2,786 ft. in gr. sh. and bentonite.

Big Horn County

Ohio Oil Co. No. 3 Sidon Canal, NW SW (Lot 40), sec. 24-56n-97w. Loc.; W.O. rig.

Joan Oil Co. No. 1 Howell, sec. 32-55n-97w (Lot 63). S.D. 2,150 ft. for 10-in.

Peay Oil Co. No. 1 Denio, Tr. 43-C, sec. 15-55n-97w. S.D. 3,930 ft.

Campbell County

Powder River O. & G. Co. No. 1 Rhodes, NE SE SW sec. 24-49n-74w. S.D. 650 ft.

Carbon County

The Ohio Oil Co. and California Co. No. 3-A Kyle, C SW NE section 26-21n-79w, was completed in the upper Sundance at 5,643 feet after plugging back from 5,745 feet to shut off water from the lower Sundance for 240 bbls. per day of pipe line oil. The well is on the western flank of the Big Medicine Bow dome, a little more than one-fourth of a mile west of the discovery well. It had the top of the Sundance at 5,624 feet. Elevation 7,320 feet.

Same companies have made location for No. 4-A Kyle, a close offset to their No. 2 Kyle, completed early this year in the upper Sundance for 132 bbls. per hour and 17,000,000 feet of gas.

The Superior Oil Co. No. 1 Christensen, NW cor. section 7-12n-92w, South Baggs dome, near the eastern end of the Cherokee Ridge uplift, drilled through the Wasatch to 2,080 feet and was plugged and abandoned. It had no commercial shows.

Ohio Oil Co.-California Co. No. 4-A Kyle, CWL E½ SE SE sec. 26-21n-79w. Cellar. (first report).

Ohio Oil Co. No. 13 Harrison & Cooper, SW SE SW sec. 35-20n-78w. Drlg 1,630 ft.

Ohio Oil Co. No. 2 Union Pacific, SW SW SE sec. 17-21n-80w. Drlg. 1,578 ft.; top Shannon 1,315 ft.

Ohio Oil Co. No. 1 Brimmer, SE SE SE sec. 32-27n-89w. Drlg. 1,763 ft.; Shannon gas sd. at 1,690-1,744 ft.

Ohio Oil Co.-California Co. No. 4-B Kyle, C SW SW sec. 24-21n-79w. W.O. rig.

Ohio Oil Co.-California Co. No. 6 Union Pacific-Johnson, C SW SE sec. 23-21n-79w. Cmtd. 12½-in. at 610 ft.; W.O.C.

Sinclair-Wyoming Oil Co. No. 11 Wertz, SE NW NW sec. 7-26n-89w. T.D. 5,987 ft.; swbd. 110 bbls. in 11 hurs.; rng. new packer.

Producers Oil Co. No. 1 CNL sec. 14-20s-88w. Drlg. 194 ft.

Ohio Oil Co.-California Co. No. 5 Cronberg-U. P., C NW NW sec. 25-21-79w. S.D.O. 5,765 ft.

Medicine Bow Oil Co. No. 1 Hintze-Govt., C NE SE sec. 18-22n-78w. S.D. 2,347 ft.

Converse County

D. D. Gray No. 1 Lane, SW SE SE sec. 22-32n-69w. M.I.M.

Kaufman & Quinlan Bros. No. 1 Lane, SE NW NE sec. 27-32n-69w. Loc. (first report).

John T. Coffee, Jr., No. 1 Mary Gasper, NW NW SW sec. 25-32n-69w. S.D. 265 ft.

Ainsworth Oil Co. No. 1 Marberger, NE SE NE sec. 34-32n-69w. Drlg. 395 ft.

Hall-Thornton et al No. 1 Roth, C NW SE sec. 13-32n-69w. S.D. 467 ft. repairs: 8¼-in. at 397 ft.

Wyoming Southern Oil Co. No. 1 Lane, C NW NE sec. 27-32n-69w. Spd. and S.D.

Elbe Oil Ld. & Dev. Co. No. 1 Benham, NW NE sec. 5-31-70w. M.I.M.

Tom Carney No. 1 Beaver, SE SE SW sec. 28-35n-68w. Some material on loc.

New Era Fuel Co. No. 1 Jones, SE SE SE sec. 21-32n-69w. Drlg. 575 ft.; slight S.G.

Chadron-Osage Oil Co. No. 1 State, SW cor. sec. 16-32n-69w. T.D. 4,060 ft.; cmtd. 8¼-in. at 4,040 ft.; W.O.C.

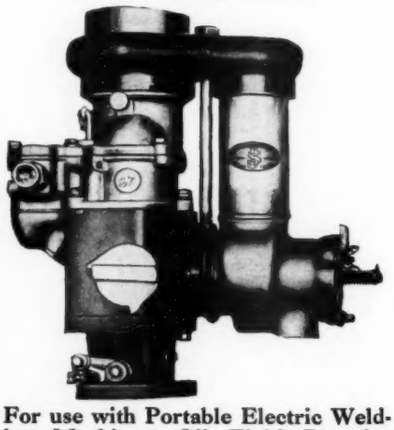
Wyoming-Southern Oil Co. No. 3 Salisbury, NE NE SE sec. 27-32n-69w. T.D. 615 ft.; 6⅝-in. 608 ft. (cor.); drlg. plug.

Fremont County

Sinclair-Wyoming Oil Co. No. 2-B Muskrat, C NW NE sec. 4-33n-92w. Rigged and rdy. to spd.; SW side Muskrat gas field; (first report).

J & S FORD DUAL ASSEMBLY

Gas, Gasoline, or both



For use with Portable Electric Welding Machines, Oil Field Pumping Units, or wherever natural gas is not always available. The change over may be made instantly without draining the gasoline float bowl or fuel pump.

J & S CARBURETOR COMPANY

705 ROSS AVENUE DALLAS, TEXAS

Stanolind O. & G. Co. No. 1 Govt., C SE SE sec. 3-33n-96w. Drlg. 4,769 ft.
Consolidated Oil Properties No. 3, C SW SE sec. 16-1n-1w. Drlg. 100 ft.; 10-in. at 60 ft.
H. Kenyon Burch No. 1 Enos, CEL NE NE sec. 28-3n-1w. S.D.O. 970 ft.; no shows.
Ben Stewart No. 1 Darnell, NE SE sec. 26-3n-1w. S.D. 875 ft.
Tropic Oil Co. No. 1 Govt., C SE SW sec. 34-27n-90w. Drlg. 3,216 ft.; carrying 4¾-in.

Hot Springs County

Italo Pet. Corp. No. 1 Phebus-Govt., NW NW SW sec. 11-44n-98w. Cg. 2,450 ft.
Oscar B. Grace No. 4 Govt., CNL SE NW sec. 21-43n-92w. T.D. 380 ft.; fsg. bailer.
J. W. Bales No. 1 Govt., CWL SE SW sec. 28-43n-93w. M.I.M. for test to Madison in Red Springs dist. (first report).

Lincoln County

H. M. Eller et al No. 4 Govt., SE NW SW sec. 32-19n-116w. T.D. 401 ft.; will test S.O. in lenticular sd. at 397-401 ft.
Place Oil Co. No. 1 Davis, SE SE SE sec. 9-26n-11w. Drlg. 1,250 ft.

Natrona County

Stanolind O. & G. Co. No. 11 Wyo. Asso. Tensleep, C NE NW sec. 35-40n-79w. T.D. 4,043 ft.; cmtd. 6⅝-in. at 4,032 ft.; perf. pipe at 3,933-15 and 3,908-3,890 ft. to tst.
Stanolind O. & G. Co. No. 29 Wyo. Assoc.-Tensleep, C. SW SW sec. 26-40n-79w. T.D. 4,100 ft.; cmtd. 6⅝-in. at 4,099 ft.
General Pet. Corp. No. 1 Govt., C NW SE sec. 21-35n-77w. Drlg. Steele sh. 4,400 ft.
Western Producers, Inc., No. 1 Govt., NW SW SE sec. 5-39n-78w. Drlg. 1,012 ft.
Stanolind O. & G. Co. No. 11 Wyo. Asso.-T.P.-35, C NE SW sec. 35-40n-79w. Drlg. 1,067 ft.; 16-in. at 167 ft.

Niobrara County

Ohio Oil Co. No. 8 Converse Sheep, NE SE SW sec. 32-36n-65w. Bldg. rig.
Ohio Oil Co. No. 2 Cash OPC-5, NW NW NE sec. 4-35n-65w. Drlg. 1,030 ft.; 12½-in. cmtd. 164 ft.
Continental Oil Co. No. 6-B Schuricht, SW SW SE sec. 6-35n-65w. Drlg. sh. 2,700 ft.
J. M. Huber Corp. No. 1 H. & M., NE NE NE sec. 8-35n-65w. W.O. rig.
J. M. Huber Corp. No. 1 Joss, NE SE NW sec. 6-35n-65w. T.D. 4,096 ft.; O.W.D.D.; M.I.R.
Lewis Goekel No. 1, NE SE NW sec. 31-35n-62e. Resumed drlg. 1,550 ft.
Minnelusa Oil Co. No. 3 Joss, NE NE SW sec. 6-35n-65w. T.D. 3,152 ft.; cmtd. pipe 702 ft.; redrlg. 2,587 ft.
Continental Oil Co. No. 3 Apex-1, SE SE NE sec. 34-36n-65w. T.D. 5,480 ft.; rec. 408 ft. D.P.; 249 ft. in hole.
W. A. Maupin et al No. 1 Berggren, NW sec. 23-35n-63w. Drlg. 180 ft.
Minnelusa Oil Co. No. 1-A Lamb, NE SE SW sec. 27-36n-65w. S.D. 5,412 ft. to str. titles; Minnelusa heavily sat.
Continental Oil Co. No. 5-B Schuricht, C SW SW sec. 5-35n-65w. T.D. 5,273 ft.; made 555 B.P.D. through tubing latest tst.
Ohio Oil Co. No. 2 Leo-O.P.C., NE NE SE sec. 35-36n-65w. R.U.R.
Ohio Oil Co. No. 1 Leo-O.P.C.-7, NW NW SE sec. 35-36n-65w. T.D. 5,641 ft.; to test on pump.
Ohio Oil Co. No. 4 Mack O.P.C.-4, NE NW NE sec. 30-58n-99w. Bld. road; Elk Basin field; (first report).
Continental Oil Co. No. 1 Leach, SW NE NE sec. 29-36n-64w. Drlg. 6,300 ft.
Continental Oil Co. No. 8 Otto Rohlff, SW SW SE sec. 31-36n-65w. T.D. 5,242 ft.; cmtd. 4¾-in. 5,139 ft.; W.O.C.
MacKennie Oil & Dev. Co. No. 2 Thompson, NW NW NE sec. 7-35n-65w. Drlg. anhyd. 4,562 ft.

Park County

Resolute Oil Co. No. 1 Northern Pacific, C NE NW sec. 21-57n-101w. Drlg. 7,915 ft. in upper Frontier.
Resolute Oil Co. No. 1 Govt., C NE NE sec. 20-57n-101w. Drlg. 8,669 ft.

Platte County

Dividend O. & R. Co., Inc., No. 1, CSL NW SW sec. 17-24n-66. Drlg. 2,415 ft.; C.D.

Sublette County

Texas Co. No. 4-I, SW NE SW sec. 27-27n-113w. Drlg. 885 ft. in sh.

Sweetwater County

The Mountain Fuel Supply Co. No. 1 Williams, C NE NE section 5-12n-95w, on the Cherokee Ridge fold, a deep test of the Wasatch, is preparing to abandon at 5,680 feet, total depth. It had no commercial oil or gas shows below 600 feet. A water well drilled close to this location before the deep test started had 2,160,000 feet of gas at 540 feet and was completed as a gas well. This location is approximately 25 miles west of the test abandoned this week by the Superior Oil Co. on the South Baggs dome. Between these two wells are a number of untested highs on the Cherokee Ridge and to the northeast of the South Baggs well the S. Marvin James interests have a gas well drilled several years ago.

Mountain Fuel Supply Co. No. 1 Lauzer, NW NW NW sec. 30-18n-103w. M.I.M.; Middle Baxter Basin; (first report).
Mountain Fuel Supply Co. No. 1 Hay, NE SE NW sec. 2-19n-110w. Drlg. 2,184 ft.
Italo Pet. Corp. No. 1 Govt., SW SW SW sec. 36-13n-95w. S.D. 610 ft.
Sinclair-Wyoming Oil Co. No. 77, SE NE NE sec. 10-26n-90w. Drlg. r. b. 2,978 ft.
Mountain Fuel Supply Co. No. 1 Union Pacific, C SW SE sec. 13-17n-104w. T.D. 3,330 ft.; P.B. to 3,241 ft.; S.D. for winter
Mountain Fuel Supply Co. No. 1 Union Pacific, C SE NE sec. 29-15n-104w, S. of Baxter Basin. Loc.

Uinta County

E. A. Ottman et al No. 1 Govt., C SE NW sec. 26-14n-110w. Drlg. 1,230 ft.; slight S.O.

Weston County

Osage Trust Co. No. 27, C NW SE sec. 14-46n-64w. R.U.C.T.
Osage Trust Co. No. 28, C NE SW sec. 14-46n-64w. Loc.
Chas. F. Martens No. 8, SW SW NW sec. 24-36n-64w. Loc.
Osage Trust Co. No. 1, SE NW NE sec. 22-46n-64w. R.U.C.T.
Bradley-Manewal Oil Co. No. 7, CWL NE NE sec. 20-46n-63w. R.O.G.; (first report).
Federal Oil Co. No. 9, CNL SE SE sec. 15-46n-64w. R.O.G.
Chas. Goodell et al No. 1 State, C NE NE sec. 23-44n-63w. Rdy. to spd.
John Brorphy No. 1 George, SW SE NW sec. 26-48n-64w. S.D. 1,850 ft.; repairs.
Sisty et al No. 1 Carmine, SE SW sec. 31-44n-62w. Drlg. 755 ft.
Le Faivre Oil Synd. No. 1 Martin, NW NW SW sec. 29-45n-68w. Drlg. 2,550 ft.; will U.R. 10-in. at 2,130 ft. for wtr. S.O.
Giles & Proutt No. 1 Govt., CEL SW NE sec. 29-45n-61w. Spdg. 30 ft.

MONTANA

Big Horn County

P. O. Oil & Gas Co. No. 1, NW NE NE sec. 25-9s-35e. T.D. 288 ft.; fshg.; (first report).
E. L. Dana No. 1 Hardy, SW NW sec. 22-9s-35e. S.D. 700 ft.

Carbon County

R. C. Tarrant No. 2 Heare, NW SE NW sec. 14-6s-10e. Drlg. 940 ft.
Miracle Oil Co. No. 2, CWL NE SE sec. 3-6s-23e. T.D. 1,568 ft. (C.D.); rng. 5⅛-in.
Geo. Muth et al No. 1, CSL SE SE sec. 23-6s-23e. S.D. indef. at 1,500 ft.
Henderson Prod. Co. No. 1-H-11 Elk 11, SE SE NW sec. 35-9s-23e. S.D. 1,626 ft. for 8¼-in.; top Frontier 1,608 ft.; small S.O.
Shaw-Wa Pet. Co. No. 1 Govt., SW SW NE sec. 35-9s-23e. T.D. 1,910 ft.; rng. 10-in.

Choteau County

Security Pet. Co. No. 1 Johnson, NE sec. 23-26n-3e. S.D. 1,700 ft.

Cascade County

C. Leonard Smith No. 1-A Smith-Schwingle, NE NE SW sec. 14-22n-2e. T.D. 750 ft.; fsg. tools.

Daniels County

White Tail O. & G. Co. No. 2 Wiley, NW NW NW sec. 10-36n-50e. Drlg. 1,671 ft.; prep. to run 10-in.

Fergus County

Baugham & Singley No. 1 Skaggs, C NW SW sec. 7-15n-20e. Drlg. 300 ft. in Quadrant; 10-in. at 20 ft.; 8¼-in. at 200 ft.; (first report).
Lewistown Oil Co. No. 1 Parks, C NE NE sec. 13-15n-18e. Drlg. 1,200 ft.; 10-in. at 300 ft.; 8¼-in. at 690 ft.
East Crest Oil Co. No. 1 Brakke, NW SE SW sec. 14-15n-19e. Drlg. 660 ft.
White Top O. & G. Co. No. 1 Govt., C NE SW sec. 35-14n-19e. Drlg. 1,400 ft.

Glacier County

Glacier Prod. Co. No. 1 Reynolds, 2,490 ft. W of E.L.; 1,320 ft. N of S.L. M.I.M.; (first report).
A. B. Cobb No. 1 State, C NE NE sec. 30-37n-4w. T.D. 2,515 ft.; fshg. tools and bailer.
B. V. Hole No. 3 All.-124, SE SW SE sec. 1-32n-6w. T.D. 3,018 ft.; fshg.; good S.O. 3,015-18 ft.

Hill County

W. E. Drought No. 1, SE NW SE sec. 29-32n-16e. Drlg. 560 ft. in Eagle sd.; (first report).

Judith Basin County

Fletcher E. Hunt No. 3, NW SE NE sec. 30-14n-15e. T.D. 1,750 ft.; prep to set 5⅞-in. on top Madison at 1,746 ft.

Lewis and Clark County

Lewis & Clark Oil Synd. No. 1 Lewis & Clark, NW NW SW sec. 11-18n-5w. R.U.C.T.; contr. to Wm. Hanlon.

Park County

Ben W. Ryan et al No. 1 Burgess, SE SW NW sec. 28-2s-11e. Drlg. 1,250 ft.; S.G. at 1,100 ft.

Petroleum County

O. B. Canfield No. 2 Govt., SE SE NE sec. 21-17n-24e. Drlg. 750 ft.; set 5⅞-in. for W.S.O.

Roosevelt County

John W. Schmidt et al No. 1 Freu, NW NW NE sec. 21-28n-50w. T.D. 1,400 ft.; cmtd. csg.; drlg. plg.

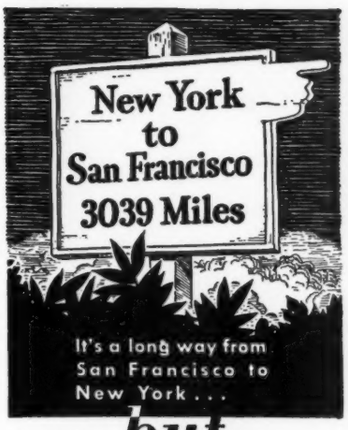
Toole County

Two wells were completed in the Kevin-Sunburst field, of which one was a gas well and one a dry hole. Six wells are drilling and eight are shut down.

The Ohio Oil Co. No. 2 Sunburst, C NE NE section 12-32n-2w, was completed for 2,000,000 feet of gas per day in the Sunburst at 1,425-41 feet.

C. L. Tomlinson No. 1 Davidson, NE NE SE section 28-35n-3w, was dry and abandoned in the contact at 1,735-50 feet.

New Era Fuel Co. No. 3 Goeckertz, C SE SW sec. 12-35n-3w. S.D. 980 ft.
Wm. McKnight No. 4 Gunderson, NE NE NW sec. 19-35n-2w. T.D. 1,605 ft.; contact 1,580 ft.; acid. 500 gals.; tstg.
Big West Oil Co. No. 7 McDonald, NW NE NE sec. 19-35n-2w. T.D. 1,617 ft.; contact 1,585 ft.; S.O.; acid and shot; will shoot again.
Scotland No. 2 McNamar, CNL NW SW sec. 29-35n-3w. T.D. 1,800 ft.; contact 1,795 ft.; good S.O.; will acid.
Hannah-Porter Co. No. 2 Benjamin, CWL SE SW sec. 18-33n-1w. Drlg. 1,230 ft.
56 Pet. Co. No. 1 Davidson, SE SE NW sec. 26-35n-4w. T.D. 2,080 ft.; contact 2,073 ft.; 5 B.O.P.D. and 20 B.W.P.D. after acid.; will acid. again.
Welch Bros. No. 2 Ward, SW SE NE sec. 29-35n-3w. Cmtd. 6⅝-in. at 1,650 ft.
Plotke & Rader No. 11 Fryberger, NW SE SE sec. 29-35n-3w. Drlg. 1,630 ft.
Hamilton & Hamilton No. 4 Reeg, SE SW SE sec. 14-35n-2w. S.D. 450 ft.



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The place—Tulsa, Oklahoma. The time—from May 26th, 1925 until October 23rd, 1935 . . . . during which time the pump was operated three or four hours a day—6 days per week at a speed of 15 or 16 strokes per minute. It took a little mathematics to arrive at the actual *mileage* of this single set of valve cups. But it shouldn't take *any figuring* on your part to arrive at the conclusion that THE ORIGINAL COMPOSITION VALVE CUPS eliminate frequent re-cupping.

DARCOVA (Orange Label) the standard for more than thirty years under severe service at all depths.

DARFLEX (Green Label) the popular favorite for wells at 800 feet in depth.

DARVAL (Blue Label) for super-service in wells to approximately 2,000 feet in depth.

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Williamsport, Pa.

HAVE YOU
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JOURNAL
SUBSCRIPTION?

Guy Smith No. 1 Govt., C NE SE sec. 35-36n-3w. Spd. 10 ft. and S.D.
C. T. Olen No. 7 Engemoen, C NW NW sec. 14-35n-2w. T.D. 1,607 ft.; contact 1,591 ft.
E. O. Reickhoff No. 3 Baum, SW SW SE sec. 3-35n-3w. S.D. 10 ft.
Bryant Bros. No. 1 Lashbaugh, NE SW NW sec. 34-25n-2w. T.D. 850 ft.; R.U. heavier mach. to resume.

Outside Kevin-Sunburst

Montana Gas Corp. No. 2 Clark, C SE SW sec. 24-37n-1w. T.D. 2,103 ft.; cmtd. 8¼-in. top gas sd. at 2,103 ft.; W.O.C.

Yellowstone County

Riverton Oil Co. No. 1 Fox, CEL NW NE sec. 14-2n-23e. Top Dakota 1,800 ft.; rng. csg.
Broadview Dome Oil Co. No. 1, NE NE SW sec. 18-3n-23e. Drlg. 3,510 ft.
Lauriel Oil Co. No. 1, C NW SW sec. 7-2s-24e. Drlg. Colo. sh. 180 ft.

UTAH

Daggett County

The Mountain Fuel Supply Co. No. 1 Keith Smith, C SW NE section 20-3n-24e, in the Clay Basin gas field, was completed at 5,674 feet in the Dakota at 5,608-67 feet for 21,000,000 feet of gas per day open flow with a rock pressure of 2,190 pounds. Location proves up more than a mile of territory on the west side, being that far to the west of No. 2 Murphy. Five wells have been completed in the field, four in the Dakota and one in the Frontier with an aggregate initial output of 80,000,000 feet a day. The field is connected with the trunk line into Utah. No. 3 Murphy, which is rigging up rotary, will test the area a mile to the east of the nearest producer.

Grand County

Utah Southern Oil Co. No. 1 Hyde, SE NW NW sec. 33-22e-22e. S.D. 6,715 ft.; M.I. heavier rotary equip.
Columbia Crude Corp. No. 1 Rath, NW SW SE sec. 12-25s-20e. Lowering 4¾-in. below 2,360 ft.
Cane Creek Oil Co. No. 1 Govt., NW SW sec. 31-26n-21e. Drlg. 720 ft.

Summit County

Longwell Pet. Co. No. 1, SE SW SE sec 35-3n-5e. Res. drlg. 2,430 ft.

NEBRASKA

Sioux County

J. M. Huber Corp. and United Producers, Inc., No. 1 Morgan, C SW SW sec. 32-35n-56e. S.D. 3,257 ft.; r.b.

Jefferson County

L. R. Page et al No. 1 Bonham, C SE SE sec. 1-1n-1e. Drlg. 2,300 ft.

NORTH DAKOTA

Williams County

California Co. No. 1 Kamp, C NW NE sec. 3-154n-96w. Drlg. below 2,248 ft.

Louisiana-Arkansas Fields

(Continued from Page 65)

Union County seeking production in the newly opened Permian lime or basal Travis Peak.

Alice Sydney Oil Co. No. 2 Morgan, an old well being drilled deeper, has set 5-inch casing at 7,575 feet, total depth 7,700 feet. The same company's No. 3 Morgan is drilling below 3,865 feet. Phillips Petroleum Co. No. 1 Gan, section 18-18-17, is preparing to run 7-inch casing at a total depth of 7,700 feet for a production test in the Permian. The other active tests in the field are drilling and coring for the deep horizon.

Lincoln Parish

A Lincoln Parish wildcat, E. T. Oakes, H. D. Easton and others No. 1 Griggs, section 36-18-1w, topped the Tokio at 3,560 feet and the anhydrite at 4,305 feet, nearly 200 feet higher than was anticipated. Total depth is below 4,350 feet and coring will continue.

Lisbon production, prorated to 10,000 bbls. by the Louisiana State Department of Conservation, is still actually under that figure, despite the increased runs afforded by the new 19-mile pipe line recently placed in operation by the Caddo Crude Purchasing Co. The total take of the Caddo and Gulf pipe lines amounts to about 7,500 bbls. daily.

Webster Parish

The Cotton Valley field of Webster Parish is gaining a new deep producer in Standard Oil Co. of Louisiana No. 2-B Gray. The test, located in the southwest corner of NE NE NW section 26-21-10, has 7-inch casing set at a total depth of 8,056 feet, with no official gauge yet reported.

An important development in the Cotton Valley field is the construction begun recently, of a new 3,000-bbl. refinery. The plant is that of the Premier Oil & Refining Co. of Longview, Tex., and will be operated in conjunction with an absorption type natural gasoline plant to be constructed by the same company on the refinery site. Initial operation is set for February 1. The company will take the light 62-gravity crude from Cotton Valley wells for skimming in the plant, and will, in addition process a large amount of the rich gas from the same leases.

New Gasoline Plant

Another new plant under construction in the area is the natural gasoline plant under way for the East Texas Refining Co. in the Miller County, Arkansas, sector of the Rodessa field. It will be completed within the next 30 days and will ultimately take up to 100,000,000 feet of gas per day in the surrounding area, and will produce in excess of 50,000 gallons of stabilized product.

California Fields

(Continued from Page 80)

from 1,801 feet after the hole had been finished with 63 feet of 6⅝-inch liner carrying 21 feet of 80-mesh screen. In section 12-28-28 D. G. Vedder completed No. 1 Bell, pumping 385 bbls. of clean 16.3-gravity oil per day from 1,977 feet after finishing the hole with 82 feet of 6⅝-inch liner including 38 feet of 140-mesh screen landed on bottom.

North Belridge

Belridge Oil Co. completed another excellent producer in the North Belridge field of Kern County when No. 43-26 in section 26-27-20 was brought in flowing 3,290 bbls. of very clean 32.1-gravity oil and 2,397,000 feet of gas per day from the Wagonwheel zone of Eocene age at 8,415 feet. This producer was finished with 353 feet of 4¾-inch liner including 312 feet of 250-mesh screen landed on bottom. It has been beaned back and is producing 840 bbls. of very clean 32.2-gravity oil per day at present through a 4/64-inch bean. This completion leaves the Belridge Oil Co. with three strings of tools in operation, but No. 7 in section 27-27-20 is being rigged up and may be spudded in soon. The Texas Co. is making good footage in No. 2 Martin, located out in the extreme northwestern end of the North Belridge field, where No. 1 Martin was completed as an excellent producer a month or so ago. Tide Water Associated Oil Co. is not losing any time on its offset obligations as Nos. 1 and 2 in the adjoining section are already making hole along with an offset by Belridge Oil Co. Richfield Oil Co. has also started a new well and this potential producer, located in section 22-27-20, is rotating ahead slightly below 2,000 feet. Tide Water Associated Oil Co., which is running four strings of tools in the North Belridge field, has completed rigs for two additional projects scheduled for immediate work.

El Segundo

Developments in the northwestern end of the El Segundo field did not look any too good during the past week due to what appears to be a declining gas pressure and the condition of Sunshine Oil Co. No. 1 Elsie-Edison, a recent completion which stopped flowing early this week. The Texas Co. concluded its drilling operations in this field a few days ago by completing No. 5 Security flowing 1,140 bbls. of exceptionally clean 24.6-gravity oil and 430,000 feet of gas per day from 7,405 feet. This new well, which is flowing through a 48/64-inch bean and shows a tubing pressure of 340 pounds and a casing pressure of 1,450 pounds, was rather slow in getting under way after the hole had been finished with 324 feet of 5-inch liner including 190 feet of perforated. The Texas Co. has experienced considerable success in development of this lease which has up to the present proved to be the most productive in the field. Ohio Oil Co. No. 9 Gough, located in the northern part of the El Segundo field, looks quite promising as a formation test from 7,320 feet, with the tester at 7,095-7,320 feet and open for 30 minutes, resulted in a recovery of 3,810 feet of fluid, of which 500 feet was clean oil and the balance gas-cut mud and drilling fluid. No. 1-A El Segundo of George F. Getty, Inc., proved somewhat of a disappointment upon completion at 7,476 feet after the hole had been finished with 61 feet of 5-inch liner including 51 feet of perforated as it failed to result in a natural flow and required the installation of pumping equipment. It was officially listed as pumping 270 bbls. of 17.1-gravity oil cutting 5 per cent daily. This well, which cost somewhere in the neighborhood of $65,000, is the second well drilled on this lease as the first well blew out during the course of work below 6,000 feet and was abandoned. In addition to running up the cost of drilling the first well also caused a fishing job in Pacific Western Oil Co. No. 1 Goodwin and delayed completion for several weeks. In the Rosecrans field Union Oil Co. has completed No. 17 Rosecrans, but it was good for only 95 bbls. of 29.4-gravity oil per day on the beam from 7,503 feet after the hole had been plugged back from 7,557 feet.

Mountain View

Two small wells were completed in the Mountain View field during the week, and judging by the decline in development work, completions in this field within another 60 days will be the exception to the rule. Production of the Mountain View field has shown a consistent drop and the abnormal decline has already resulted in the abandonment of several wells which showed large production upon completion a few years ago. American Exploration Co. has completed No. 1 Gilbert in section 18-30-29, but it was good for only 70 bbls. of 23.3-gravity oil per day from 4,775 feet. No. 1 Gilbert, which logged the top of the Wharton zone at 4,734 feet, is flowing through a 48/64-inch bean, but does not show a high pressure. Petrol Production Co., a subsidiary of the Petrol Corp., California refiner and marketer, has completed No. 1 Earl Fruit pumping 128 bbls. of 28.9-gravity oil per day from 5,815 feet and will probably hang up tools as far as this area is concerned. This well is located in section 4-31-29 not far removed from where several excellent flowing wells have been completed during the past six months.

In the Midway-Sunset field of Kern County, the Texas Co. has completed No. 27 in section 32-32-24 pumping 327 bbls. of relatively clean 22.3-gravity oil per day from 2,884 feet after the hole had been carried down to 2,916 feet and plugged back because of a gray sand logged in the bottom of the hole. The Texas Co. has two additional potential producers under way in this field and one of them should be ready for a production test within another few days. This is No. 28, on which drilling operations have been concluded at 3,015 feet. In the Fruitvale field of Kern County Meridian Oil Co. has completed No. 7 Turner pumping 349 bbls. of 16.9-gravity oil cutting 5 per cent per day from 3,038 feet after finishing the hole with 42 feet of 4¾-inch liner including 41 feet of 300-mesh screen landed at 3,037 feet. In the Elk Hills field Richfield Oil Corp. has completed No. 1-H-A in section 1-31-24 pumping 320 bbls. of 23.2-gravity oil cutting 15 per cent daily from 3,005 feet. The company is drilling one other well in this field and has a new rig erected for another in the same section.

Eastern Fields

(Continued from Page 64)

feet on the Edna J. Knight farm. The Columbian Carbon Co. has reached 4,958 feet in No. 2 Henry R. Glass. United Fuel Gas Co. has 14 wells drilling, and rigging up two more. Joe Rubin is down 1,325 feet on the Lawrence Smith heirs farm.

In Union district, United Fuel Gas Co. is down 3,375 feet on the J. A. McCormick farm. Godfrey L. Cabot, Inc., has reached 4,016 feet on the Fred Stresser and others lease. West Virginia Gas Co. is drilling at 2,200 feet on the Ellen Good and others farm. The Ajax Gas Co. is down 3,500 feet on the L. B. and B. F. Bess farm. Columbian Carbon Co. is down 4,838 feet on the C. B. Cavender lease. Cameron Oil & Gas Co. is down 3,729 feet on the H. A. Casdorph and others.

Outside Deep Tests

In Cabin Creek district, Kanawha County, Pure Oil Co. is drilling at 5,120 feet in No. 6 Slaughters Creek Coal Land Co. In Boone County, Owens-Illinois Glass Co. No. 32 Pertonia Coal Land Co. in Sherman district is fishing at 5,220 feet.

In Jackson County, United Carbon Co. cemented pipe in the Corniferous lime in the Elizabeth Ward Perkins northern test and is now drilling out the cement. This is in Washington district. In Ripley district, Potter Development Co. is cementing cave at 600 feet on the William Chancey farm.

In Clay County the Pittsburgh & West Virginia Gas Co. is drilling at 2,953 feet on the Jesse L. Chapman farm in Otter district. In Wood County the test of the Belmont Quadrangle Co. on the C. D. White farm is drilling at 3,250 feet. This is in Steel district. In Tucker district, Wirt County, the Carnegie Natural Gas Co. has set casing in the test on the W. O. Caplinger farm 10 feet in the Corniferous and are now preparing to resume drilling.

California Production In October

According to figures collected by the American Petroleum Institute, the total production of crude oil in California for October amounted to 21,528,921 bbls., an average of 694,481 bbls. per day.

CRUDE PETROLEUM PRODUCTION

(Figures are in barrels of 42 gallons)

	Total production	Daily average		
	October	Oct., 1937	Sept., 1937	Oct., 1936
Group No. 1:				
Beiridge—North	516,090	16,648	16,296	15,140
Beiridge—South	55,137	1,779	1,990	1,863
Coalinga	490,286	15,815	16,158	15,070
Edison	122,225	3,943	4,054	5,917
Elk Hills	339,879	10,963	11,069	8,175
Fruitvale	264,591	8,535	9,087	9,299
Greeley	68,657	2,215	1,824	....
Kern River	476,823	15,381	15,605	13,746
Kettleman Middle dome	3,137	101	103	291
Kettleman North dome	2,517,040	81,195	80,500	77,903
Lost Hills	128,480	4,145	4,142	3,758
McKittrick	139,867	4,512	4,439	1,777
Midway-Sunset	2,277,420	73,465	74,402	59,502
Mountain View	535,122	17,262	18,363	22,429
Mount Poso	612,207	19,749	18,948	17,751
Round Mountain	470,133	15,166	13,795	11,837
Ten Section	93,957	3,031	3,263	835
Wheeler Ridge	9,677	312	318	343
Group No. 2:				
Capitan	90,475	2,919	2,941	1,539
Elwood	257,748	8,315	8,317	11,721
Rincon	111,581	3,599	3,251	2,270
San Miguelito	110,670	3,570	3,332	2,067
Santa Barbara	17,792	574	599	978
Santa Maria	426,686	13,764	12,819	5,041
Summerland	1,046	34	25	34
Ventura Avenue	1,075,890	34,706	34,935	33,728
Ventura-Newhall	158,329	5,107	5,117	4,740
Watsonville	1,860	60	60	60
Group No. 3:				
Brea-Olinda	190,685	6,151	6,140	8,145
Coyote—East	122,618	3,955	4,112	2,573
Coyote—West	218,737	7,056	7,165	7,990
Dominguez	908,196	29,297	29,994	24,874
El Segundo	676,370	21,818	12,688	381
Huntington Beach	1,124,527	36,275	36,048	35,256
Inglewood	500,234	16,137	15,981	11,909
Lawndale	2,763	89	77	80
Long Beach	1,791,436	57,788	59,284	65,530
Los Angeles-Salt Lake	17,798	574	566	810
Montebello	244,007	7,871	8,047	9,772
Playa Del Rey	241,454	7,789	7,847	11,505
Potrero	12,058	389	236	266
Richfield	279,463	9,015	8,786	6,984
Rosecrans	130,754	4,218	3,831	2,329
Santa Fe Springs	1,282,306	41,365	42,023	44,217
Seal Beach	291,981	9,419	9,296	9,241
Torrance	223,927	7,223	7,620	8,217
Whittier	27,542	888	913	882
Wilmington	1,869,260	60,299	58,778	....
Total October	21,528,921	694,481	685,184	578,775
Total September	20,555,578	685,184	.....	.....
Increase	973,343	9,297	.....	.....

CALIFORNIA OIL FIELD DEVELOPMENT

	New rigs up	Active drilling	Producers comp.	Daily initial output	Active producing	Abd. wells Drillers	Abd. wells Producers
Group No. 1:							
Beiridge—North	6	9	3	8,855	48	..	..
Beiridge—South	..	..	..	....	172	..	..
Coalinga	1	2	..	....	932	..	..
Edison	..	2	1	260	91	1	1
Elk Hills	2	1	..	....	165	..	5
Fruitvale	2	3	3	1,036	161	2	1
Greeley	4	7	1	2,104	7	..	..
Kern River	3	3	3	535	1,346	1	..
Kettleman Middle dome	..	1	..	....	3	..	..
Kettleman North dome	3	12	1	2,525	166	..	..
Lost Hills	1	4	2	344	287	..	..
McKittrick	1	2	..	....	210	1	..
Midway-Sunset	7	15	6	3,313	2,452	2	4
Mountain View	..	7	3	1,528	192	3	1
Mount Poso	7	8	12	2,984	275	2	..
Round Mountain	7	5	5	1,634	150	1	..
Ten Section	..	3	1	2,838	7	..	..
Wheeler Ridge	..	..	..	....	24	..	..
Group No. 2:							
Capitan	..	..	..	....	37	..	..
Elwood	..	..	..	....	83	..	..
Rincon	..	1	2	772	35	..	..
San Miguelito	..	3	..	....	13	..	..
Santa Barbara	..	..	..	....	38	..	..
Santa Maria	16	24	6	3,639	265	2	..
Summerland	..	..	..	....	19	..	..
Ventura Avenue	..	7	3	2,012	245	..	..
Ventura-Newhall	2	14	3	375	574	2	1
Watsonville	..	..	..	....	7	..	..
Group No. 3:							
Brea-Olinda	..	1	..	....	369	..	..
Coyote—East	..	1	..	....	78	..	..
Coyote—West	..	1	..	....	34	..	1
Dominguez	..	5	1	260	159	..	..
El Segundo	9	21	7	11,434	38	1	..
Huntington Beach	..	..	..	....	580	..	..
Inglewood	..	..	..	....	195	..	..
Lawndale	..	..	..	....	6	..	..
Long Beach	2	5	4	539	1,236	1	3
Los Angeles-Salt Lake	..	..	..	....	113	..	..
Montebello	..	1	..	....	201	1	1
Playa Del Rey	..	..	..	....	202	..	4
Potrero	..	1	..	....	10	..	..
Richfield	1	5	1	243	282	..	..
Rosecrans	..	4	1	91	80	..	..
Santa Fe Springs	..	2	..	....	658	1	2
Seal Beach	..	1	..	....	111	..	..
Torrance	..	3	..	....	534	..	1
Whittier	..	1	..	....	155	..	..
Wilmington	22	25	25	15,446	300	..	..
Miscellaneous drilling	14	47	..	....	....	10	..
Group No. 4—Gas Fields:							
Buena Vista Lake	..	..	..	....	5	..	..
Buttonwillow	..	..	..	....	..	..	..
Chochilla	..	..	..	....	..	..	..
Delano	..	..	..	....	2	..	..
Dudley Ridge	..	..	..	....	..	..	..
Goleta	..	..	..	....	1	..	..
McDonald Island	..	1	..	....	5	..	..
Rio Vista	1	1	2	gas	6	..	..
Semi-Tropic	..	1	..	....	..	..	..
Tracy	..	..	..	....	6	..	..
Total October	111	260	96	62,767	13,370	31	25
Total September	145	248	100	75,920	13,245	27	10
Increase (*decrease)	*34	12	*4	*13,153	125	4	15

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New York, Broadway 39

Canadian Fields

Completions and Operations in Northwest and in Ontario

By VICTOR LAURISTON

CHATHAM, Ontario, Nov. 27.—Crude and naphtha deliveries from the Turner Valley field to Calgary refineries in October totaled 281,576 bbls., compared with 234,941 bbls. in September and 95,756 bbls. in October, 1936. Imperial Oil Refineries took 197,494 bbls. including 37,114 bbls. of naphtha and 160,380 bbls. of crude. Deliveries to the British American Oil Co. totaled 84,082 bbls., including 81,789 bbls. of crude and 2,293 bbls. of naphtha.

Turner Valley Producers

Davies Royalite No. 2, with potential of 3,000 bbls. prorated at 1,070 bbls., is still the largest crude producer in the field. Prairie Royalties No. 1, LSD 16, section 17-18-2w5, with a potential of 2,058 bbls. after acidization, is prorated at 926 bbls.

Brown Oil Corp. No. 1, LSD 14, section 16-18-2w5, settled after acidization to a measured potential of 1,850 bbls., prorated at 647 bbls. Commoil No. 1, LSD 15, section 29-18-2w5, is rated fourth, but no real test has yet been possible for lack of storage and separator facilities. Storage tanks for 6,000 bbls. are being set up and an extra separator installed after which the well will be tubed and acidized and an official test made.

Among the newer completions, Brown Oil Corp. No. 2, LSD 8, section 20-18-2w5, bottoming in the lime at 7,002 feet, recorded potential of 670 bbls. after acidization, and was prorated at 234 bbls. Firestone Petroleums No. 1, LSD 13, section 16-18-2w5, finished in the lime at 6,713 feet, was acidized and developed a big flush production, settling to 839 bbls. potential, prorated at 294 bbls. Foundation Royalties No. 1, LSD 3, section 21-18-2w5, an older producer, recorded 674 bbls. potential after acidizing, and is prorated at 236 bbls. Monarch Royalties No. 1, LSD 9, section 20-18-2w5, developed 807 bbls. potential after acidizing, and is prorated at 282 bbls. Royal Crest Petroleums No. 1, LSD 9, section 32-18-2w5, finished in the lime at 7,114 feet, has potential of 735 bbls. after acidizing, prorated at 257 bbls. Four Star Petroleum No. 1, LSD 13, section 28-18-2w5, has potential of 682 bbls., prorated at 238 bbls. Three Point Petroleums No. 1, LSD 12, same section, has potential around 350 bbls., prorated at 122 bbls. Share Royalties No. 1, LSD 8, section 29-18-2w5, previously making 480 bbls., increased its potential by acidizing to 900 bbls. and is prorated at 316 bbls.

Royalite Oil Co. No. 6 Sterling Pacific, LSD 5, section 33-18-2w5, was finished at 7,123 feet after drilling about 440 feet in the Madison limestone and developed a natural production around 700 bbls. a day. It is being tubed and acidized.

In section 32-18-2w5, West Flank Oil Co. No. 1, LSD 1, finished at 7,135 feet, after drilling around 440 feet in the Madison. It was cleared of fluid with gas lift, and tubing run. It is testing production.

Tests in the Lime

In section 29-18-2w5, National Petroleum Corp. No. 1, S half LSD 8, is finishing with cable tools below 7,036 feet after getting the lime at 6,786 feet. Strong shows of crude with some gas have been encountered.

In section 20-18-2w5, Royal Canadian Oils No. 1, LSD 15, got the Madison limestone at 6,960 feet and is preparing to resume after cementing casing at 6,975 feet. Sunset Oils No. 1, LSD 10, same section, got the lime at 7,020 feet and is standing cemented. These two tests are well down the west flank in the south end of the field and in lime with Commoil No. 1 producer farther north. The Commoil well also got the lime deep, at 6,984 feet, and went to 7,475 feet to develop big crude production.

West Side Drilling

In west central Turner Valley, Brown Oil Corp. No. 3, LSD 15, section 19-19-2w5, is below 5,986 feet.

In section 5-19-2w5, Mercury Royalties No. 1, LSD 8, is resuming from 4,907 feet after a protracted fishing and sidetracking job.

In section 32-18-2w5, West Flank Oil Co. No. 2, N half LSD 1, is below 5,662 feet; No. 3, LSD 8, is below 6,036 feet; No. 4, W half LSD 1, is rigging derrick, and No. 5, NW quarter LSD 1, and No. 6, W half LSD 8, are digging cellar.

In section 28-18-2w5, Richland No. 2, LSD 5, is below 6,203 feet with the Madison limestone expected around 6,350 feet.

In section 29-18-2w5, Model-Spooner-Reward No. 2, S half LSD 1, has derrick up and is rigging rotary tools from No. 2 producer, immediately to the east. It will spud early in December.

In section 21-18-2w5, Barsac Royalties No. 1, LSD 12, is below 1,002 feet. In section 19-18-2w5, Scottish Petroleums No. 1, LSD 16, is working on casing at 195 feet. In section 33-17-2w5, Davies Petroleums No. 3, LSD 7, is rigging cable tools from its No. 1 well, and will spud early in December.

Okalta Fold

On the Okalta fold, west of South Turner Valley, Okalta Oils No. 6, LSD 3, section 30-18-2w5, is in caving formation below 2,825 feet. It is testing a parallel structure about 2 miles west of the crude oil line and is logging much higher than the crude producers of the west flank.

North Turner Valley

In North Turner Valley Royalite Oil Co. No. 29, Turner Basin, LSD 7, section 27-20-3w5, is below 5,926 feet. Home Oil Co. No. 1 Millarville, LSD 8, section 33-20-3w5, is resuming after a fishing job at 7,602 feet. This is the deepest test yet drilled on the west flank. Location of this well is 11 miles north and 4 miles west of the center of the present crude producing area and 19 miles north of Davies Petroleums No. 3, the southernmost well in the field.

On the Highwood-Sinclair structure, west of South Turner Valley, Green Valley Oils No. 1 Banner, LSD 6, section 34-17-3w5, is below 4,440 feet after cementing casing at 4,400 feet. Samples indicate the well is logging 2,000 feet higher than the Firestone and Prairie wells on the Turner Valley west flank, some 5 miles to the southeast, and is close to the Home sands. The Green Valley well started in the cardium sandstone and below that marker has logged very closely with Turner Valley producers. It already produces sufficient gas for drilling and camp purposes.

Southern Alberta

In the Taber field, southern Alberta, Plains Petroleum Corp. No. 3, section 25-9-17w4, is on top of the Clancey sands, a little below 3,040 feet and cementing casing preparatory to drilling into production. Plains No. 2, LSD 11, same section, is reported making up to 200 bbls. a day, from the same horizon, production being taken by Imperial Oil, Ltd. Amerada Oils No. 1, LSD 13, section 19-9-16w4, about 1¾ miles southeast of Plains No. 2, is rigging. North Taber Exploration Co. No. 1, on the north end of the structure, is working on derrick. Cole No. 1, LSD 13, section 18-9-16w4, is hauling equipment.

Sunshine Oil Co. of Vancouver, British Columbia, has secured 5,100 acres in the Taber area from the Canadian Pacific Railway, under stipulations that No. 1 well is to be started by April, 1938.

In the Steveville district, Anaconda Oil Co. No. 1, LSD 15, section 9-22-12w4, is below 1,210 feet, after cementing casing.

East-Central Alberta

In the Ribstone field, east-central Alberta, Blackfoot-Ribstone Oils of Edmonton is preparing to drill its No. 1 test in NW cor. SE quarter section 28-43-2w4, about 2 miles due north of the town of Ribstone. Production is expected between 2,000 and 2,200 feet.

Dina Oil & Refining Co. No. 4, LSD 13, section 9-45-1w4, is below 300 feet. The company, which has a small refinery producing distillate and asphalt from the output of its No. 1 well, has added a second still to its plant. The distillate is marketed locally.

Saskatchewan Drilling

In the Lloydminster field, western Saskatchewan, Triangle Oil & Gas Co. No. 2 resumed after running casing, and drilled into a strong gas pocket at 1,400 feet. It is deepening to the main sand around 1,700 feet.

In the Pei Wei Hills, 35 miles south of Hudson Bay Junction, in eastern Saskatchewan, Perry L. Withers No. 1 is running casing preparatory to resuming from 1,253 feet.

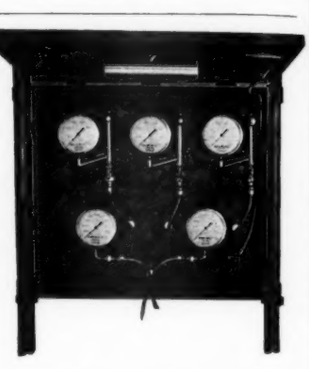
Drilling in Ontario

In the De Clute field, Kent County, Ontario, Gas Producers Syndicate No. 4, Pardo farm, Raleigh Township, is below 1,525 feet with initial flow around 3,000,000 feet a day. It is being deepened in the sand and looks like a large well. Union Gas Co. No. 36, N quarter Lot 144, North Talbot Road, is starting. Union No. 37, S quarter same lot, is starting.

In the Chatham Township field, Kent County, Union Gas Co. No. 17, Lot 28, Baldoon, Doven Township, 3 miles west of the producing area, is drilling.

In the Dover field E. P. Rowe No. 4, Johnston farm, E part Lot 5, Front Concession Raleigh Township, is resuming

(Continued on Page 104)



Here's the New MARSHALLTOWN Drilling Rig Gauge Panel

This new Marshalltown Drilling Rig Gauge Panel is portable and illuminated. It protects the gauges from the heat of the boiler, the vibration of the pumps, as well as corrosion by the elements. Live steam cannot reach the gauges because of the water leg in the piping. Test gauge connections are installed on the board. Flexible connections allow for quick installation. Stirrups provide for 2" iron pipe standards.

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WILDCAT OPERATIONS

CALIFORNIA

IMPORTANT WELLS AND NORTHERN CALIFORNIA WILDCATS

Company, well and location—	S.T.R.	Depth	Status
Hancock-Bush, No. 1-W Santa Maria, Santa Barbara	25-10-34	4,900	sd. sh. drlg.
Hancock-Bush, No. 2-C.L., Santa Maria, Santa Barbara	30-10-33	4,353	sd. sh. drlg.
Macrate, A. N., No. 2-R Santa Maria, Santa Barbara	23-10-34	2,640	sd. sh. drlg.
Mitchell, A. D., No. 1-W Santa Maria, Santa Barbara	27-10-34	3,391	sd. sh. drlg.
York Oil, No. 1 Doane, Santa Maria, Santa Barbara	27-10-34	4,464	sd. sh. drlg.
Pet. Prop., Inc., No. 1-R Santa Maria, Santa Barbara	19-10-33	2,321	cmtd. 1,260
Linnell Oil, No. 1 Santa Maria, Santa Barbara Co.	23-10-34	3,211	pump. 50 b.d.
Jones, Frank, No. 1 Santa Maria, Santa Barbara Co.	26-10-34	4,808	sd. sh. drlg.
Moore, E. H., No. 3 Sugar, Santa Maria, Santa Barbara	24-10-34	4,833	sd. sh. drlg.
Moore, E. H., No. 4 Sugar, Santa Maria, Santa Barbara	19-10-34	4,571	sd. sh. drlg.
Moore, E. H., No. 5 Sugar, Santa Maria, Santa Barbara	25-10-35	4,192	sd. sh. drlg.
Pet. Sec., No. 1-R Santa Maria, Santa Barbara Co.	35-10-34	963	sd. sh. drlg.
Signal Oil, No. 1 Libeu, Santa Maria, Santa Barbara	26-10-34	4,220	sd. sh. drlg.
Union Oil, No. 3 Russell, Santa Maria, Santa Barbara	30-10-33	4,399	sd. sh. drlg.
Union Oil, No. 1 Vicente, Santa Maria, Santa Barbara	21-10-34	4,290	sd. sh. drlg.
Union Oil, No. 2 LeRoy, Santa Maria, Santa Barbara	24-10-35	5,230	cleaning out
Union Oil, No. 17 Cal. Coast, Orcutt, Santa Barbara	27- 9-34	4,073	sd. sh. drlg.
Dougan Oil, No. 1 Yelkin, Santa Maria, Santa Barbara	27-10-34	892	idle
O'Donnell, J. E., No. 1 Santa Maria, Santa Barbara	21-10-34	4,759	flow. 700 b.d.
Getty, George F., No. 1 Santa Maria, Santa Barbara	27-10-34	4,320	sd. sh. drlg.
Pac. West. Oil, No. 5-H Santa Maria, Santa Barbara	21-10-34	4,320	rd. sh. drlg.
Pac. West. Oil, No. 1-S Santa Maria, Santa Barbara	27-10-34	4,570	sd. sh. drlg.
Pac. West. Oil, No. 2-D.P. Santa Maria, Santa Barbara	27-10-34	3,796	sd. sh. drlg.
Crude Oil Drlg., No. 1 Casmalia, Santa Barbara Co.	19- 9-34	1,320	rd. sh. drlg.
Texas Co., No. 134 Shiells, Ventura Co.	4- 3-19	4,165	sd. sh. drlg.
Richfield Oil, No. 1 McFarland, Camarillo, Ventura	13- 2-21	5,294	reaming
So. Cal. Drlg., No. 1 McFarland, Camarillo, Ventura	26- 2-21	1,975	sd. sh. drlg.
Texas Co., No. 1 Edwards, Camarillo, Ventura Co.	19- 2-21	981	sd. sh. drlg.
Condor Oil, No. 1 Sespe, Ventura Co.	6- 4-19	2,193	cleaning out
Stallings & Senter, No. 1 Timber Canyon, Ventura	24- 4-21	185	sd. sh. drlg.
Ivers, H. A., No. 14 Star, Sespe, Ventura Co.	1- 4-20	1,610	rd. sh. drlg.
Williamson Oil, No. 1, Sespe, Ventura Co.	1- 4-20	515	sd. sh. drlg.
Section 20 Oil, No. 1 Sespe, Ventura Co.	20- 5-19	765	hd. sh. drlg.
Speik Oil, No. 2 Sespe, Ventura Co.	33- 5-19	3,310	sd. sh. drlg.
Colima Oil, No. 2 Sespe, Ventura Co.	25- 5-19	3,500	milling
Topa Topa Oil, No. 3 Sespe, Ventura Co.	33- 5-19	4,502	sd. sh. drlg.
Skyline Oil, No. 1-H Hopper Canyon, Ventura Co.	13- 4-18	1,850	sd. sh. drlg.
Continental Oil, No. 8 Grubb, San Miguelito, Ventura	24- 3-24	3,937	redrlg. 1,751
C. C. M. Oil, No. 2 Padre Canyon, Ventura Co.	23- 3-24	7,828	P.B. 6,625
Continental Oil, No. 4 Padre Canyon, Ventura Co.	15- 3-24	6,028	P.B. 5,980
C. C. M. Oil, No. 11 Rincon, Ventura Co.	17- 3-24	3,370	sd. sh. drlg.
Tide Water A. O., No. 32 V.L.W., Ventura, Ventura	24- 3-23	6,070	sd. sh. drlg.
Tide Water A. O., No. 30 Lloyd, Ventura, Ventura	27- 3-23	6,880	flow. 75 b.d.
Tide Water A. O., No. 63 Lloyd, Ventura, Ventura	27- 3-23	4,850	flow. 110 b.d.
Tide Water A. O., No. 69 Lloyd, Ventura, Ventura	27- 3-23	2,060	sd. sh. drlg.
Tide Water A. O., No. 135 Lloyd, Ventura, Ventura	27- 3-23	7,574	cleaning out
Tide Water A. O., No. 138 Lloyd, Ventura, Ventura	23- 3-23	5,360	sd. sh. drlg.
Tide Water A. O., No. 18 Hartman, Ventura, Ventura	22- 3-23	8,480	sd. sh. drlg.
Tide Water A. O., No. 27 Hartman, Ventura, Ventura	22- 3-23	6,575	rig. to pump
Shell Oil, No. 92 Taylor, Ventura Ave., Ventura Co.	20- 3-23	5,840	sd. sh. drlg.
General Pet., No. 13 Notten, Ventura, Ventura Co.	28- 3-23	8,935	sd. sh. drlg.
Tide Water A. O., No. 10-E-3 Lost Hills, Kern Co.	3-26-20	2,235	sd. sh. drlg.
Standard Oil, No. 7 United, Lost Hills, Kern Co.	2-26-20	1,294	rig. to pump
Amerada Pet., No. 5 Beer, Devils Den, Kern Co.	22-26-19	4,315	br. sh. drlg.
Franco-Western Oil, No. 14 McKittrick, Kern Co.	8-30-22	2,065	O.S. drlg.
Par Mer Oil, No. 1 McKittrick, Kern Co.	6-31-22	1,720	br. sh. drlg.
Standard Oil, No. 2 Randolph, Semi-Tropic, Kern Co.	14-27-23	7,694	sd. sh. drlg.
Continental Oil, No. 2 Wasco, Kern Co.	8-27-24	11,584	fish. D.P.
Belridge Oil, No. 43-26 North Belridge, Kern Co.	26-27-20	8,415	flow. 3,225 b.d.
Belridge Oil, No. 27-7 North Belridge, Kern Co.	27-27-20	1,053	sd. sh. drlg.
Belridge Oil, No. 27-8 North Belridge, Kern Co.	27-27-20	5,470	br. sh. drlg.
Belridge Oil, No. 61-27 North Belridge, Kern Co.	27-27-20	5,330	br. sh. drlg.
Belridge Oil, No. 28-1 North Belridge, Kern Co.	28-27-20	2,692	sd. sh. drlg.
Tide Water A. O., No. 2 North Belridge, Kern Co.	34-27-20	4,483	sd. sh. drlg.
Tide Water A. O., No. 7 North Belridge, Kern Co.	34-27-20	5,480	br. sh. drlg.
Tide Water A. O., No. 1-21 North Belridge, Kern Co.	21-27-20	4,861	br. sh. drlg.
Tide Water A. O., No. 2-21 North Belridge, Kern Co.	21-27-20	2,483	rd. sh. drlg.
Richfield Oil, No. 1-A North Belridge, Kern Co.	22-27-20	2,483	sd. sh. drlg.
Texas Co., No. 2 Martin, North Belridge, Kern Co.	22-27-20	4,375	sd. sh. drlg.
General Pet., No. 1 St. Helens, Belridge, Kern Co.	12-28-20	3,798	sd. sh. drlg.
Eastmont Oil, No. 6 Olcese, Round Mountain, Kern	16-28-29	1,801	sd. sh. drlg.
Fremont Oil, No. 2 Olcese, Round Mountain, Kern	35-28-29	2,426	hd. sd. drlg.
Link Trucking, No. 1 Round Mountain, Kern Co.	30-28-20	1,695	idle
Shell Oil, No. 16 Freeman, Round Mountain, Kern	20-28-20	1,869	P.B. 1,815
Cal-Western Oil, No. 7- C. C., Round Mountain, Kern	12-28-28	1,860	pump. 420 b.d.
Cal-Western Oil, No. 8 C. C., Round Mountain, Kern	12-28-28	1,942	O.S. drlg.
Vedder, D. G., No. 1 McDonald, Round Mtn., Kern Co.	12-28-28	1,661	sd. sh. drlg.
Vedder, D. G., No. 1 Bell, Round Mtn., Kern Co.	12-28-28	1,977	pump. 389 b.d.
L. A. Const., No. 1 Tavis, Round Mountain, Kern Co.	4-29-29	3,825	hd. sd. drlg.
Standard Oil, No. 8 Ward, Kern Front, Kern Co.	24-28-27	1,990	rig. to pump
California Star Oil, No. 3-80 Kern Front, Kern Co.	22-28-27	2,755	rig. to pump
Kern River Oilfields, No. 25-3B Kern Front, Kern	25-28-27	1,866	cmtd. 1,835
Union Oil, No. 8 Del Rey, Kern Front, Kern Co.	11-28-27	1,900	P.B. 1,840
Fuhrman, A., No. 11 Kern River, Kern Co.	28-28-28	571	sd. sh. drlg.
Morrison, C. S., No. 14-H, Kern River, Kern Co.	2-29-28	260	gr. sd. drlg.
Marcan Oil, No. 1 C. L., Kern River, Kern Co.	12-28-28	1,416	rd. sh. drlg.
Vedder, D. G., No. 4 B. N. B., Mount Poso, Kern Co.	32-26-28	1,752	pump. 168 b.d.
Ring Oil, No. 3 Shapiro, Mount Poso, Kern Co.	32-26-28	1,760	O.S. drlg.
Texas Co., No. 6 Glide, Mount Poso, Kern Co.	15-27-28	1,162	rd. sh. drlg.
Texas Co., No. 12 Vedder, Mount Poso, Kern Co.	4-27-28	1,586	pump. 106 b.d.
Travis, P. J., No. 1 Giffen, Mount Poso, Kern Co.	10-27-28	1,291	sd. sh. drlg.
Vedder Pet., No. 29-2 Lambert, Mount Poso, Kern Co.	29-26-28	1,807	P.B. 1,778
Pacific O. & G., No. 2 Davidson, Mount Poso, Kern	36-27-27	2,696	sd. sh. drlg.
Bargol Oil, No. 3 Newhope, Mount Poso, Kern Co.	11-27-27	1,243	pump. water
Pebble Beach Oil, No. 5 Newhope, Mount Poso. Kern	29-27-27	2,621	pump. 98 b.d.
Framac Oil, No. 1 Brown, Mount Poso, Kern Co.	22-27-27	1,351	fish. D.P.
Meridian Oil, No. 7 Turner, Fruitvale, Kern Co.	23-29-27	3,038	pump. 347 b.d.
Simmel, L. C., No. 2 Fruitvale, Kern Co.	23-29-27	3,760	pump. 160 b.d.
Western Gulf Oil, No. 29 K. C. L., Fruitvale, Kern Co.	14-29-27	3,060	sd. sh. drlg.
Sandy Oil, No. 2 Fruitvale, Kern Co.	26-29-27	3,317	idle
Section Six Oil, No. 1 Mountain View, Kern Co.	6-31-29	6,650	sd. sh. drlg.
American Expl., No. 1-G Mountain View, Kern Co.	18-30-29	4,792	redrlg. 4,771
Vesta Oil, No. 12 Mountain View, Kern Co.	19-30-29	5,130	P.B. 5,100
Hogan Pet., No. 5 Symons, Mountain View, Kern Co.	4-31-19	6,129	sd. sh. drlg.
Hogan Pet., No. 5 Bankline, Mountain View, Kern Co.	4-31-29	3,860	sd. sh. drlg.
North Amer. Consd., No. 2-T Mountain View, Kern Co.	9-31-29	5,567	flow. 1,145 b.d.
Petrol. Prod., No. 1 Fruit, Mountain View, Kern Co.	4-31-29	5,815	pump. 120 b.d.
Westbrook Oil, No. 1 Edison, Kern Co.	4-30-29	3,557	reaming
Wood-Callahan Oil, No. 1 Harvey, Edison, Kern Co.	21-30-29	3,573	pump. 48 b.d.
General Pet., No. 1 Houchin, Arvin, Kern Co.	27-31-29	7,928	P.B. 7,490
Continental Oil, No. 1 Rosedale, Kern Co.	12-29-26	10,210	redrlg. 7,778
Superior Oil, No. 1 Krause, Greeley, Kern Co.	21-29-26	6,264	sd. sh. drlg.
Superior Oil, No. 9 KCL, Greeley, Kern Co.	3-30-26	7,870	cleaning out
Superior Oil, No. 10 KCL, Greeley, Kern Co.	3-30-26	7,091	sd. sh. drlg.
Standard Oil, No. 11-9 KCL, Greeley, Kern Co.	20-29-26	7,797	sd. sh. drlg.
Standard Oil, No. 11-10 KCL, Greeley, Kern Co.	17-29-26	7,800	flow. 3,335 b.d.
Standard Oil, No. 11-11 KCL, Greeley, Kern Co.	17-29-26	5,990	sd. sh. drlg.
Standard Oil, No. 1-F Greeley, Kern Co.	20-29-26	7,760	flow. 2,160 b.d.
Standard Oil, No. 17-1 KCL, Greeley, Kern Co.	9-29-26	7,356	sd. sh. drlg.
Standard Oil, No. 15-1 KCL, Ten Section, Kern Co.	27-30-26	7,681	sd. sh drlg.
Shell Oil, No. 8-28-A KCL, Ten Section, Kern Co.	28-30-26	8,590	sd. sh. drlg.
Shell Oil, No. 36-30-A KCL, Ten Section, Kern Co.	30-30-26	7,700	sd. sh. drlg.
Ohio Oil, No. 3-E, KCL, Strand, Kern Co.	14-30-25	8,175	flow. 2,100 b.d.
Standard Oil, No. 1 Magunden, Kern Co.	2-30-28	5,290	sd. sh. drlg.
Monticello Oil, No. 4 Midway-Sunset, Kern Co.	27-31-22	1,544	cleaning out
U. S. Pump & Equip. Co., No. 2 Midway-Sunset, Kern	12-11-24	1,775	sd. sh. drlg.
C. C. M. Oil, No. 55-21 Midway-Sunset, Kern Co.	21-32-23	2,415	hd. sh. drlg.
Pattiway Oil, No. 3 Midway-Sunset, Kern Co.	12-11-24	1,596	sd. sh. drlg.
Hallmark Oil, No. 9 Midway-Sunset, Kern Co.	25-12-24	2,701	O.S. drlg.
Standard Oil, No. 127-33-D Midway-Sunset, Kern Co.	33-32-24	2,164	sd. sh. drlg.
Victor Oil, No. 1 Midway-Sunset, Kern Co.	35-32-23	1,173	sd. sh. drlg.
Ethel D Oil, No. 21-A Midway-Sunset, Kern Co.	36-12-24	609	sd. sh. drlg.
National Oil, No. 30 Midway-Sunset, Kern Co.	35-32-23	2,142	hd. sd. drlg.
Gibson Oil, No. 5 O'Brien, Midway-Sunset, Kern Co.	6-11-23	2,810	P.B. 2,408
Texas Co., No. 1 Pioneer, Midway-Sunset, Kern Co.	33-11-23	4,997	gr. sd. drlg.
Texas Co., No. 27 Midway-Sunset, Kern Co.	32-32-24	2,884	pump. 310 b.d.
Texas Co., No. 28 Midway-Sunset, Kern Co.	32-32-24	3,276	bailing

KEY TO ABBREVIATIONS USED IN DRILLING REPORTS

Abd., abandoned.
Bldg., building.
B.D., barrels daily.
B.P., back pressure.
B.R., building rig.
Br. sh., brown shale.
B.S., basic sediment.
C.P., casing pressure.
Cd. or Crd., cored.
C.D., corrected depth.
Cg., coring.
C.L., center line.
Cmtd., cemented.
C.O., cleaning out.
Comp., completed.
Compr., compressor.
C.P., casing pressure, also cement through perforations.
Csg., casing.
D.D., drilling (or drilled) deeper.
Drlg. or Drg., drilling.
Drk. or Dk., derrick.
D.S., drill stem.
D.&A., dry and abandoned.
Fsg., fishing.
Gbo., gumbo.
G.I., gas injection.
Gr., gravity.
Gr. sd., gray sand.
Grn. sh., green shale.
Hd. sd., hard sand.
H.F.W., hole full of water.
I.P., initial production.
L., lime.
L.D.D., later drilled deeper.
Lnr., liner.
Loc., location.
M.I.M., moving in material.
M.I.R., moving in rig.
M.I.R.T., moving in rotary tools.
M.O.T., milling on tools.
O.I.H., oil in hole.
O.S., oil sand.
O.T.D., old total depth.
O.W.D.D., old well drilling deeper.
O.W.P.B., old well plugging back.
P.B., plugging or plugged back.
P.B.P., plugging big pipe.
P.L., pipe line.
P.L.O., pipe line oil.
Pmpg., pumping.
P.O.P., putting on pump.
P.P., pulled pipe.
Rd. sd., red sand.
Rd. sh., red shale.
Recmt., recemented.
Rmg., reaming.
Redrlg., redrilling.
Rng., running.
R.O.G., rig on ground.
R.P., rock pressure.
R.U., rigging up.
R.U.R., rigging up rotary.
R.U.R.T., rigging up rotary tools.
R.U.S.T., rigging up standard tools.
R.&T., rods and tubing.
S. or Sd., sand.
S.D., shut down.
Sdy. sh., sandy shale.
Sdtr., or St., sidetracking.
S.D.P.L., shut down for pipe line.
S.D.W.O., shut down awaiting orders.
S.G., show gas.
Sh.&L., shale and lime.
S.I., shut in.
S.I.P., shut in, prorated.
S.L.M., steel line measurement.
S.O., show oil.
S.O.G.&W., show of oil, gas and water.
Spdg. or Spd., spudding.
S.R., straightreaming.
Stdg., standardizing (also standing).
S.W., salt water.
Swbg., swabbing.
T.A., temporarily abandoned.
Tbg., tubing.
T.D., total depth.
T.P., tubing pressure.
Tr., tract.
U.R., underreaming.
W.I.H., water in hole.
W.O., workover.
W.O.C. or W.O.C.S., waiting on cement to set.
W.P., working pressure.
W.S.O., water shutoff.
W.S.S.O.K., water shutoff O.K.
W.S.O.N.G., water shut off no good
W.S.R. or W.O.S.R., wait on standard rig.
Wtr., water.

Texas Co., No. 29 Midway-Sunset, Kern Co.	32-32-24	3,040	sd. sh. drlg.
Richfield Oil, No. 1-H-A Elk Hills, Kern Co.	1-31-24	3,005	pump. 310 b.d.
Richfield Oil, No. 3-H-A Elk Hills, Kern Co.	1-31-24	2,970	sd. sh. drlg.
Ohio Oil, No. 2-D Tejon, Kern Co.	23-11-19	1,991	sd. sh. drlg.
Universal Oil, No. 1 Tejon, Kern Co.	33-11-19	2,175	sd. sh. drlg.
Honolulu Oil, No. 33-1 SP, Tejon, Kern Co.	33-12-19	1,164	sd. sh. drlg.
Bergman, Harry, No. 1 Dos Palos, Fresno Co.	12-12-11	6,138	cleaning out
Pure Oil, No. 1 Cantua, Fresno Co.	31-18-17	8,482	sd. sh. drlg.
Dauphin Dev., No. 1 Alcade, Fresno Co.	30-21-14	2,361	br. sh. drlg.
Jacalitos Oil, No. 1 Jacalitos, Fresno Co.	14-21-15	4,874	sd. sh. drlg.
K. N. D. A., No. 4-18-J Kettleman North, Fresno Co.	18-21-17	11,746	fish. D.P.
K. N. D. A., No. 43-34-J Kettleman North, Fresno Co.	34-21-17	7,960	sd. sh. drlg.
K. N. D. A., No. 83-4-P Kettleman North, Fresno Co.	4-22-17	7,398	gr. sd. drlg.
K. N. D. A., No. 27-12-P Kettleman North, Kings Co.	12-22-17	6,975	sd. sh. drlg.
K. N. D. A., No. 38-12-P Kettleman North, Kings Co.	12-22-17	5,900	br. sh. drlg.
K. N. D. A., No. 6-6-Q Kettleman North, Kings Co.	6-22-18	8,430	sd. sh. drlg.
K. N. D. A., No. 27-6-Q Kettleman North, Kings Co.	6-22-18	8,100	sd. sh. drlg.
Standard Oil, No. 27-21-J Kettleman North, Fresno	21-21-17	7,570	br. sh. drlg.
Standard Oil, No. 27-33-J Kettleman North, Fresno	33-21-17	8,530	sd. sh. drlg.
Standard Oil, No. 2-11-P Kettleman North, Kings	11-22-17	7,285	br. sh. drlg.
Standard Oil, No. 76-1-P Kettleman North, Kings	1-22-17	6,575	br. sh. drlg.
Standard Oil, No. 21-13-P Kettleman North, Kings	13-22-17	4,861	sd. sh. drlg.
Superior Oil, No. 1 Huffman, Kettleman No., Fresno	29-21-17	10,150	coring ahead
Bandini Pet., No. 5 Whepley, Kettleman No., Fresno	35-21-17	8,387	cleaning out
Temblor Oil, No. 1-B Kettleman Middle, Kings Co.	25-23-18	9,052	hd. sh. drlg.
Pyramid Prod., No. 1 Pyramid Hills, Kings Co.	27-24-18	1,255	br. sh. drlg.
Amerada Pet., No. 1 Carano, Los Banos, Merced Co.	19-10-11	5,167	flow. water
Little Cuyama Oil, No. 1 Adelaida, San Luis Obispo	3-10-26	2,971	sd. sh. drlg.
Elba Oil, No. 1 Pajaro, Monterey Co.	6-13-2	3,970	cmtd. 3,900
Amerada Pet., No. 1 Deterding, Rio Vista, Solano Co.	36- 4-2	4,377	shut in
Standard Oil, No. 2 Weyl, McDonald Is., San Joaquin	25- 2-4	6,134	gr. sd. drlg.
Standard Oil, No. 1 Morris, Delano, Tulare Co.	36-24-23	10,210	hd. sh. drlg.
Wilcox, J. F., No. 1 Sears, Tulare Co.	29-24-28	300	sd. sh. drlg.
Trico Oil & Gas, No. 2 Tulare Lake, Tulare Co.	35-21-25	3,704	dry; abd.
Standard Oil, No. 1 Hooper, Woodland, Yolo Co.	32- 9-1	3,700	shows gas
Empire O. & G., No. 1 Woodland, Yolo Co.	8- 9-3	231	sd. sh. drlg.
Wilshire Oil, No. 1 Half Moon Bay, San Mateo Co.	20- 6-5	4,052	sd. sh. drlg.
Ohio Oil, No. 1 Williard, Glenn Co.	18-20-2	1,165	sd. sh. drlg.

IMPORTANT WELLS AND SOUTHERN CALIFORNIA WILDCATS

Company, well and location—	S.T.R.	Depth	Status
Richfield Oil, No. 2 SF El Segundo, Los Angeles Co.	7- 3-14	6,890	sd. sh. drlg.
Richfield Oil, No. 1 McCray, El Segundo, Los Angeles	12- 3-15	7,090	Schist, drlg.
Richfield Oil, No. 2 McCray, El Segundo, Los Angeles	12- 3-15	4,981	sd. sh. drlg.
Richfield Oil, No. 1-R, El Segundo, Los Angeles Co.	18- 3-14	4,990	sd. sh. drlg.
Sunshine Oil, No. 1 G.W. El Segundo, Los Angeles	12- 3-15	5,985	sd. sh. drlg.
Sunshine Oil, No. 1 C.W. El Segundo, Los Angeles	12- 3-15	6,870	sd. sh. drlg.
Sunshine Oil, No. 2 C.W. El Segundo, Los Angeles	12- 3-15	6,199	sd. sh. drlg.
Sunshine Oil, No. 1-W El Segundo, Los Angeles Co.	12- 3-15	6,785	sd. sh. drlg.
Apex Pet., No. 1 Elsie, El Segundo, Los Angeles Co.	12- 3-15	7,103	sd. sh. drlg.
Tide Water A. O., No. 1 El Segundo, Los Angeles Co.	9- 3-14	7,850	hd. sh. drlg.
Ohio Oil, No. 8 Gough, El Segundo, Los Angeles Co.	7- 3-14	7,516	pump. 125 b.d.
Ohio Oil, No. 9 Gough, El Segundo, Los Angeles Co.	7- 3-14	7,320	completing
Ohio Oil, No. 10 Gough, El Segundo, Los Angeles Co.	7- 3-14	4,751	sd. sh. drlg.
Texas Co., No. 5 Security, El Segundo, Los Angeles	18- 3-14	7,405	flow. 250 b.d.
Ruchti Pet., No. 1 El Segundo, Los Angeles Co.	12- 3-15	7,099	cmtd. 6,885
Standard Oil, No. 4 Ref., El Segundo, Los Angeles	13- 3-15	7,474	cleaning out
Standard Oil, No. 5 Ref., El Segundo, Los Angeles	13- 3-15	7,045	sd. sh. drlg.
Standard Oil, No. 6 Ref., El Segundo, Los Angeles	13- 3-15	6,974	sd. sh. drlg.
Getty Oil, No. 1-A El Segundo, Los Angeles Co.	7- 3-14	7,476	sd. sh. drlg.
Howard Oil, No. 1 El Segundo, Los Angeles Co.	12- 3-15	4,897	sd. sh. drlg.
Lakeside Oil, No. 10-1 Elsie, El Segundo, Los Angeles	12- 3-15	5,591	sd. sh. drlg.
Wilshire Oil, No. 9-1 Elsie, El Segundo, Los Angeles	12- 3-15	6,858	sd. sh. drlg.
Wilshire Oil, No. 9-2 Elsie, El Segundo, Los Angeles	12- 3-15	6,910	sd. sh. drlg.
Standard Oil, No. 12 Rubel, Inglewood, Los Angeles	17- 2-14	2,531	sd. sh. drlg.
C. C. M. Oil, No. 33-T Torrance, Los Angeles Co.	16- 4-14	4,000	O.S. drlg.
Kavanaugh, E. C., No. 1 Palos Verdes, Los Angeles	17- 4-14	5,240	tested wet
Rolling Hills Pet., No. 1 Palos Verdes, Los Angeles	27- 4-14	475	sd. sh. drlg.
Tide Water A. O., No. 4 Cypress, Potrero, Los Angeles	34- 2-14	5,581	sd. sh. drlg.
Shell Oil, No. 92 Reyes, Dominguez, Los Angeles Co.	33- 3-13	7,860	P.B. 7,732
Union Oil, No. 51 Callender, Dominguez, Los Angeles	33- 3-13	4,211	sd. sh. drlg.
Union Oil, No. 56 Callender, Dominguez, Los Angeles	33- 3-13	9,540	sd. sh. drlg.
Union Oil, No. 57 Callender, Dominguez, Los Angeles	33- 3-13	6,996	sd. sh. drlg.
Union Oil, No. 10 Carson, Dominguez, Los Angeles	33- 3-13	7,000	sd. sh. drlg.
Selbar Oil, No. 1 Harris, Dominguez, Los Angeles Co.	33- 3-13	4,905	redrlg. 1,495
Barnsdall Oil, No. 18 O'Dea, Rosecrans, Los Angeles	18- 3-13	7,595	reaming
Union Oil, No. 35 H.P., Rosecrans, Los Angeles Co.	18- 3-13	8,115	sd. sh. drlg.
Union Oil, No. 17 Rosecrans, Los Angeles Co.	18- 3-13	7,557	pump. 85 b.d.
Macrate, A. N., No. 2 Rosecrans, Los Angeles Co.	17- 3-13	8,345	pump. 80 b.d.
War-Mil Pet., No. 1 Moss, Rosecrans, Los Angeles Co.	18- 3-13	793	sd. sh. drlg.
Texas Co., No. 5-1 Gardena, Los Angeles Co.	30- 3-13	1,077	sd. sh. drlg.
Barnsdall Oil, No. 2-S.F. Newhall, Los Angeles Co.	26- 4-17	5,084	redrlg. 4,360
Burt, A. G., No. 1 Newhall, Los Angeles Co.	36- 4-17	2,450	hd. sd. drlg.
Royal Lands, No. 1 Ramona, Castaic, Los Angeles	8- 4-17	821	hd. sd. drlg.
General Pet., No. 5 Isco, Wilmington, Los Angeles Co.	4- 5-13	5,322	sd. sh. drlg.
General Pet., No. 7-T Wilmington, Los Angeles Co.	4- 5-13	3,125	flow. 150 b.d.
Allied Pet., No. 26, Wilmington, Los Angeles Co.	32- 4-13	2,978	sd. sh. drlg.
Bankline Oil, No. 7-D.H., Wilmington, Los Angeles	34- 4-13	2,765	sd. sh. drlg.
Bankline Oil, No. 12-D.H., Wilmington, Los Angeles	34- 4-13	2,198	sd. sh. drlg.
Bankline Oil, No. 24-D.H., Wilmington, Los Angeles	34- 4-13	3,035	sd. sh. drlg.
Bankline Oil, No. 8-P.T., Wilmington, Los Angeles	34- 4-13	3,437	pump. 97 b.d.
Baker Oil, No. 1 Wilmington, Los Angeles Co.	35- 4-13	3,502	fish. bit
Caminol Co., No. 2 Comm. Wilmington, Los Angeles	32- 4-13	2,275	sd. sh. drlg.
Exeter Oil, No. 2 Banning, Wilmington, Los Angeles	32- 4-13	3,615	flow. 370 b.d.
Mid-Cal. Oil, No. 6-B-G., Wilmington, Los Angeles Co.	33- 4-13	169	sd. sh. drlg.
Pac. Western Oil, No. 1-R Wilmington, Los Angeles	33- 4-13	5,700	sd. sh. drlg.
Pongratz, Gus, No. 1 Webb, Wilmington, Los Angeles	33- 4-13	1,992	sd. sh. drlg.
Raleigh Oil, No. 1 Patten, Wilmington, Los Angeles	33- 4-13	3,250	sd. sh. drlg.
Royalty Serv., No. 22-7 Wilmington, Los Angeles Co.	33- 4-13	3,604	sd. sh. drlg.
Royalty Serv., No. 1-H Wilmington, Los Angeles Co.	32- 4-13	2,960	sd. sh. drlg.
Royalty Serv., No. 1-K Wilmington, Los Angeles Co.	33- 4-13	3,504	sd. sh. drlg.
Selegna Drlg., No. 10 Wilmington, Los Angeles Co.	33- 4-13	5,320	sd. sh. drlg.
Union Pacific, No. 47 Wilmington, Los Angeles Co.	3- 5-13	4,065	sd. sh. drlg.
Union Pacific, No. 54 Wilmington, Los Angeles Co.	4- 5-13	3,484	sd. sh. drlg.
Union Pacific, No. 56 Wilmington, Los Angeles Co.	4- 5-13	3,572	sd. sh. drlg.
Union Pacific, No. 59 Wilmington, Los Angeles Co.	4- 5-13	2,796	sd. sh. drlg.
Union Pacific, No. 65 Wilmington, Los Angeles Co	34- 4-13	3,350	flow. 775 b.d.
Union Pacific, No. 66 Wilmington, Los Angeles Co.	34- 4-13	2,691	sd. sh. drlg.
Union Pacific, No. 67 Wilmington, Los Angeles Co.	34- 4-13	3,472	sd. sh. drlg.
Union Pacific, No. 68 Wilmington, Los Angeles Co.	34- 4-13	2,844	sd. sh. drlg.
Wilbur, V. R., No. 2-S.F., Wilmington, Los Angeles	33- 4-13	2,574	rd. sh. drlg.
Wilton Oil, No. 2 Wilmington, Los Angeles Co.	32- 4-13	3,640	pump. 205 b.d.
Alford Oil, No. C.Y. Wilmington, Los Angeles Co.	22- 4-13	3,600	sd. sh. drlg.
British American Oil, No. 1 Pico, Los Angeles Co.	12- 2-12	4,020	idle
David, No. 1 Garvey Ranch, Montebello, L. Angeles	22- 2-11	560	sd. sh. drlg.
Texas Co., No. 18 Baldwin, Montebello, Los Angeles	5- 2-11	4,391	hd. sd. drlg.
St. Helens Pet., No. 20-M, Montebello, Los Angeles Co.	6- 2-11	5,898	sd. sh. drlg.
Union Oil, No. 2 Flood Control, Los Angeles Co.	13- 4-13	2,371	sd. sh. drlg.
Union Oil, No. 3 Flood Control, Los Angeles Co.	13- 4-13	3,849	sd. sh. drlg.
Abrams, John, No. 1 Flood Control, Los Angeles Co.	13- 4-13	1,683	sd. sh. drlg.
Texas Co., No. 4 Bauman, Long Beach, Los Angeles	19- 4-12	4,756	rig. to pump
Texas Co., No. 14 Harlow, Long Beach, Los Angeles	19- 4-12	4,650	bailing
Shell Oil, No. 1-Hath., Long Beach, Los Angeles Co.	28- 4-12	2,191	sd. sh. drlg.
Rico Pet., Inc., No. 1 Long Beach, Los Angeles Co.	30- 4-12	4,080	redrlg. 2,892
Richfield Oil, No. 11 Denni, Long Beach, Los Angeles	29- 4-12	2,754	sd. sh. drlg.
Richfield Oil, No. 4 Keon, Long Beach, Los Angeles	29- 4-12	4,400	sd. sh. drlg.
Clayton, G. L., No. 1 North Long Beach, Los Angeles	32- 3-12	6,240	sd. sh. drlg.
Union Oil, No. 100 Santa Fe Springs, Los Angeles Co.	6- 3-11	11,210	sd. sh. drlg.
General Pet., No. 37-A Santa Fe Springs, Los Angeles	6- 3-11	3,900	redrlg. 3,790
Texas Co., No. 7-W Santa Fe Springs, Los Angeles Co.	6- 3-11	6,530	redrlg. 6,487
Continental Oil, No. 40 Bixby, Seal Beach, Orange Co.	2- 5-12	7,501	P.B. 5,570
Lido Pet., No. 2 Severns, Huntington, Orange Co.	34- 5-11	4,405	redrlg. 2,235
Shell Oil Co., No. 4-1 Columbia, Olinda, Orange Co.	9- 3-9	7,397	hd. sd. drlg.
Brea Canyon Oil, No. 36 Brea Canyon, Orange Co.	2- 3-10	4,552	fish. D.P.
Standard Oil, No. 127 Murphy, West Coyote, Orange	18- 3-10	3,240	cmtd. 3,224
Severns Drlg., No. 2 McNally, West Coyote,. Orange	18- 3-10	7,272	resume work
Texas Co., No. 2 Isaacs, Richfield, Orange Co.	32- 3-9	3,458	rig. to pump
Union Oil, No. 46 Chapman, Richfield, Orange Co.	29- 3-9	4,400	sd. sh. drlg.
Oil Income, No. 1 Anderson, Yorba, Orange Co.	22- 3-9	1,803	recmtd. 1,660
Hjorth & Mohr, No. 1 Yorba, Orange Co.	22- 3-9	1,403	P.B. 1,345
Berco Oil, No. 1 Milhous, Yorba, Orange Co.	22- 3-9	1,165	hd. sd. drlg.
Angelus Oil, No. 1 Jacobs, Yorba, Orange Co.	22- 3-9	1,110	sd. sh. drlg.
Bachmann Pet., No. 1 Page, Yorba, Orange Co.	22- 3-9	1,620	bailing
Shell Oil, No. 1-H Anaheim, Orange Co	9- 4-10	7,700	sd. sh. drlg.

KANSAS

Week Ending November 27 (Descriptions are East unless marked otherwise)

Barber County

Kansas Oil Corp. No. 1 Mease, NE SE SE sec. 27-30-11w. Drlg. 4,125 ft.

Olson Oil Co. and Skelly Oil Co. No. 1 Elsea, SW SE NW sec. 27-32-14w. Sil. 5,225-48 ft.; T.D.; P.B. to Miss.; S.D.O.

Palmer Oil Corp. et al No. 1 Warwick, C NW sec. 29-31-10w. Rig.

Pryor & Lockhart No. 1 Pickens, CWL E½ SW sec. 34-30-13w. T.D. 1,900 ft.; set 10-in.

Barton County

R. E. Day et al No. 1 Felts, SE SE NE sec. 14-16-12w. Drlg. 120 ft.

Martin & Foraker et al No. 1 Dick Est., NE SW SW sec. 31-19-11w. Rig.

Arch Merriman et al No. 1 Norris, NE NE NW sec. 33-17-11w. T.D. 3,234 ft.; S.D.

C. L. Price No. 1 Hammeke, NE NE SW sec. 12-18-12w. Sil. 3,415-27 ft.; 1,800 ft. O.I.H.; bails 4 bbls. wtr. every other day.

Shell Pet. Corp. No. 1 Eckart, SE SE SW sec. 13-16-14w. R.U.R.

Shell Pet. Corp. No. 1 Ehrlich, SW cor sec. 1-16-14w. Sil. 3,267 ft.; T.D. 3,296 ft.; swb. 24 B.O. in 1 hr.

Stanolind O. & G. Co. No. 1 Hagen A, SE sec. 21-20-11w. Sil. 3,328 ft.; T.D. 3,333 ft.; R.U.S.T.

Chautauqua County

C. L. Brosius et al No. 1 Garrett, NW SW NW sec. 26-32-11. H.F.W. 2,076 ft., T.D.; P.B. 1,545 ft.; C.O.

W. G. Buffington No. 1 Fisher, CWL SW NW sec. 10-34-9e. S.D. 1,677 ft.

Harrison No. 1 Brown, NE SE NE sec. 19-34-10. S.D. 820 ft.

Ingot Oil Co. No. 1 McKee, SW NE SW sec. 21-32-12. T.D. 1,209 ft.; acd.

I. W. Siegel No. 1 Temple, SW cor. sec. 31-32-12. Rig.

Clark County

Olson Oil Co. No. 1 Lehman, SE SW sec. 20-32-31w. T.D. 1,835 ft.; frozen wtr. lines; S.D.

Olson Oil Co. et al No. 1 Watkins, SW NW sec. 23-32-21w. T.D. 4,950 ft.; S.D.

Cowley County

Arthur Brewer No. 1 Shepard, NE NE SE sec. 20-32-4e. Rng. 8-in. 2,213 ft.

Murta & Wilson et al No. 1 Stuber, SE NE NE sec. 27-30-5e. Set 10-in. 1,485 ft.; C.O.

Pryor & Lockhart No. 1 Brown, NE SE SE sec. 34-33-2e. Sil. 3.853-64 ft., T.D.; P.B. 3,403 ft.; C.O. 3,402 ft.

Roth et al No. 1 Fry, NW SW SW sec. 8-31-3e. Drlg. 800 ft.

Smith & Price No. 1 Henderson, SW SW sec. 25-32-6. T.D. 2,565 ft.; W.O. 6-in. csg.

Earl Wakefield No. 1 Whitson, SW NE SE sec. 8-32-4e. Drlg. 1,400 ft.

Ellis County

Bradley Oil Co. No. 1 Jenson, NW NW SE sec. 36-11-19w. Drlg. 1,700 ft.

Colonial Oil Co. and Bernheimer No. 1 Albert, SW SW NE sec. 31-12-18w. T.D. 3,400 ft.; S.D.

Continental Oil Co. No. 1 Baumrucker. NE SW sec. 25-14-16w. Run 10-in. to 365 ft.

J. J. Muth et al No. 1 Penney, C N½ NE SE sec. 29-14-18w. O.W.D.D.; drlg. below 500 ft.

P. G. Reynolds et al No. 1 Karlin, NW cor. sec. 13-12-18w. H.F.W. 3,240 ft.; S.D. for csg.

C. E. W. Skiles et al No. 1 Jensen, SW SE NE sec. 26-12-18w. S.D. 2,910 ft.

Ellsworth County

Hunkle et al No. 1-A Andrea, NE SE sec. 7-17-10w. Run 15-in. 400 ft.

Ford County

Olson Oil Co. et al No. 1 Fowler, C SW sec. 26-27-22w. T.D. 5,578 ft.; frozen wtr. lines; S.D.

Greenwood County

Eagle Oil Co. No. 1 Stine, NE NE SE sec. 13 28-10. U.R. 8-in. 730 ft.

John Nichols et al No. 1 Central Life, SE SW sec. 35-25-12. Spd. and S.D.

Whittaker & Johnson No. 1 Cannon, CEL SE NW sec. 8-26-13. Set 6-in. 1,185 ft.; fsg.

Harvey County

Allison et al No. 1 Hawks, SE SW NE sec. 16-24-1w. T.D. 2,710 ft.; W.O.C.

Jackson County

Lemmick Oil Co. No. 1 Marble Savings Bank, NE cor. sec. 26-9-14. Spd. and S.D.

Marion County

Tom Palmer, Inc. No. 1 Matz, SW SE SE sec. 8-19-1e. Drlg. below 2,300 ft.

McPherson County

C. E. Ash Drlg. Co. No. 1 Broman, NE NE NW sec. 19-17-4w. Wilcox 3,724 ft.; H. F.W. 3,730 ft.; T.D.; S.D.

Boyle & Grossman No. 1 Diener, SE SE NE sec. 35-19-1w. Drlg. 2,600 ft.

Carter Oil Co. No. 1 Hoglund, C W½ SW NW sec. 8-17-3w. Drlg. below 900 ft.

Fred C. Frank et al No. 1 Doles, SW NW NE sec. 12-19-1w. Drlg. 2,855 ft.

Phillips Pet. Co. No. 1 Galle, NW NE sec. 11-21-2w. Set 13-in. 157 ft.; W.O.C.

Meade County

Pacific Mid-West Co. No. 1 Rexford, NE SE SW sec. 8-30-29w. Drlg. 950 ft.

Ness County

Continental Oil Co. No. 1 Olson, SW NW SE sec. 5-18-25w. Drlg. 1,100 ft.

Marshall Drlg. Co. et al No. 1 Anderson, SW NW sec. 23-16-24w. Spd. and S.D.

Trojan O. & G. Co. No. 1 Moses, C SW NW sec. 10-18-25w. Fsg. 300 ft.

Trojan O. & G. Co. No. 1 Page Milling Co., SE SE NW sec. 36-18-26w. Fsg. 3,265 ft.

Pawnee County

Phillips Pet. Co. No. 1 Johnson, C NE NW sec. 8-20-19w. Drlg. 3,620 ft.

Stanolind O. & G. Co. and Amerada Pet. Corp. No. Jantz, SW cor. sec. 25-20-16w. Sil. 3,804-09 ft.; acd.; to swb.

Phillips County

C. W. Davidson et al No. 1 Elliff, SE NE NE sec. 35-5-18w. S.D. 350 ft.

Pratt County

E. W. Hamilton and Robert Ray No. 1 Holland, SW NW SE sec. 6-26-12w. Drlg. 4,177 ft.

Skelly Oil Co. et al No. 1 Adams, SE NW NE sec. 2-28-11w. Wilcox 4,287 ft.; lost tools at 4,300 ft.; drlg. by.

Reno County

Albert Austin No. 1 Schwiethale, SW SW NE sec. 17-23-10w. Drlg. 3,310 ft.

Lib Phillips et al No. 1 McPheeters, NE NE NW sec. 22-26-8w. Spd. and S.D.

Sam Schneider et al No. 1 Kroecker. NE cor. sec. 12-22-5w. Drlg. below 3,585 ft.

Westgate-Greenland et al No. 1 Popp, SW SW NE sec. 7-25-4w. T.D. 3,591 ft.; wtr. in hole; S.D.O.

Rice County

Gillespie et al No. 1 Strong, NE NW sec. 9-18-8w. Spd. and S.D.

John Hanna et al No. 1 Marshall, NE NW NW sec. 30-18s-8w. S.D. 1,530 ft.

Fred Phillips et al No. 1 Oden, SE NE NW sec. 22-20-7w. Circ. at 3,355 ft.

Skiles et al No. 1 Campbell, SE SE NE sec. 28-19-9w. T.D. 2,957 ft.; S.D.

W. E. Witt et al No. 1 Fair, NW SE SE sec. 4-22-8w. Pay sd. 3,338 ft.; T.D. 3,345 ft.; est. 2,000,000 ft. gas; O.I.H.

Rooks County

C. R. Craft et al No. 1 Ziegler, NE SW sec. 8-10-16w. Cong. 3,435-38 ft.; set pipe 3,414 ft.; drlg. plug.

Graham et al No. 1 Fike, SW cor. sec. 9-9-17w. T.D. 3,326 ft. pmpd. 50 B.O. and 35 B.W. in 8 hrs.; fsg.

Producers Oil Co. No. 1 Ham, SW SW NW sec. 25-7-19w. S.D. 200 ft.

Producers Oil Co. No. 1 Tucker, SW SE NW sec. 23-10-17w. Drlg. 1,636 ft.

Texas Co. No. 1 McCarroll, C W½ W½ NW sec. 29-10-17w. T.D. 4,200 ft. in granite; S.D.O.

Texo Trading Co. No. 1 Probst, SW SW NE sec. 18-6-19w. Drlg. 2,500 ft.

Rush County

Duwe & Brouk No. 1 Lebsack, SE SE NE sec. 13-16-16w. Sil. 3,492-95 ft.; 1,500 ft. sulfur water in hole in 2½ hrs.; T.D. 3,512 ft.; S.D.O.

Wakefield & Brouk No. 1 Kerbs, NW NW SE sec. 11-17-16w. Drlg. 2,235 ft.

Russell County

Emrichs et al No. 1 Anderson, NE SE SW sec. 33-15-11w. Spd. and S.D.

Jones & Shelburne No. 1 Short, NE cor. sec. 12-15-12w. Drlg. 1,000 ft.

Murfin and Vernon O. & G. Co. No. 1 Pearson, NE cor. sec. 31-15-15w. T.D. 2,760 ft.; U.R.

C. L. Price No. 1 Sebesta, NE NE sec. 36-15-11w. Set 5-in. 3,260 ft.; wtr. and S.S.O. at 3,284 ft.; U.R.

Winkler & Koch No. 1 Jones, SE SE NW sec. 22-14-13w. Sil. 3,180 ft.; S.D.O.

Sedgwick County

Continental O. Co. et al No. 1 Oehlert, NW SE sec. 7-27-4w. Sil. L. 4,140-47 ft., T.D.; D.&A.

Frank Hudson et al No. 1 Fulton, NE SE sec. 35-28-1e. Fsg. 1,550 ft.

McKnab No. 1 Garrett, SE SW SW sec. 18-29-2e. S.D. 100 ft.

I. W. Murfin et al No. 1 Martin, SE NW sec. 32-28-1e. T.D. 3,491 ft.; acd.; swb. 45 B.O. in 24 hrs.

National Ref. Co. No. 1 fee, SE NE SE sec. 26-27-2e. T.D. 3,099 ft.; P. 27 B.W. first hr. and 91 B.O., no wtr. next 5 hrs.; P.B. 3,098 ft.

M. Steinbuchel et al No. 1 Shaffer, SW SW NW sec. 18-25-1e. Drlg. 2,640 ft.

Union O. & R. Co. et al No. 1 Howell, SW cor. sec. 6-29-1e. T.D. 2,400 ft.; S.D.

Stafford County

W. P. Faulkner No. 1 Moses, NW SW sec. 9-22-13w. Drlg. below 3,000 ft.

Lindsay & Balliere et al No. 1 Tiepermann, SW SW NW sec. 31-22-12w. Drlg. 1,545 ft.

Tom Palmer No. 1 Fair, SE NE SW sec. 10-22-11w. Drlg. 1,700 ft.

Fred Rust et al No. 1 Drach, NE SW sec. 12-22-13w. Sil. 3,693 ft.; T.D. 3,705 ft.; pot. 945 B.O.; comp.

Stanolind O. & G. Co. No. 1 Tiechman, SE cor. sec. 13-22-13w. T.D. 3,744 ft.; W.O.C.

Stanolind O. & G. Co. No. 1 Wadsack, SW SW NE sec. 4-25-11w. Drlg. 957 ft.

Torry & Feaster et al No. 1 McConnaughay, NE SE NW sec. 8-24-13w. Sil. 4,130 ft.; T.D. 4,155 ft.

Torry & Feaster et al No. 1 Negley, SW SW NE sec. 23-22-12w. R.U.R.

Sumner County

Cities Service Oil Co. No. 1 McCoy, SE SW sec. 11-35-2e. Drlg. 3,690 ft.

W. M. McKnab No. 1 Blair, SW cor. sec. 7-30-1e. T.D. 3,869 ft.; swbs. 75 to 100 B.O.P.D.

R. J. Wixson No. 1 Newton, SE SE sec. 21-30-2e. Drlg. 2,990 ft.

Trego County

Carlock No. 1 Kinzel, SW SW sec. 9-13-22w. Spd. and S.D.

Thurman Hill et al No. 1 Lawson, SW SW NW sec. 7-14-22w. Sil. L. 4,340-98 ft., T.D.; no shows; D.&A.

Woodson County

Chas. Reeser et al No. 1 Welde, NW SE sec. 18-25-14. Drlg. 750 ft.

OKLAHOMA

Week Ending November 27

NORTHERN OKLAHOMA

Beckham County

Mid-American Oil Co. No. 1-A Biscoe, SW cor. sec. 28-8-22w. Granite Wash; S.O. 2,213-20 ft.; S.D.

Caddo County

Indian Terr. Illum. Oil Co. No. 1 Dome-Bo, C NE SE sec. 29-6-10w. Drlg. sh. 5,899 ft.

Cleveland County

Harper-Turner No. 1 Pollock, C W½ NW NW sec. 13-9-2w. T.D. 6,850 ft.; fsg.

Creek County

M. W. Mosier et al No. 1 Holcomb, SE SW NW sec. 19-18-8. T.D. 3,018 ft.; 2,000 ft. W.I.H. and S.S.O.; to reset csg.

Garfield County

H. R. Hollenback et al No. 1 Clark, NW cor. sec. 34-21-6w. T.D. 5,415 ft.; S.D.

Garvin County

B. C. D. Edwards No. 1 Clark, NE cor. sec. 16-3n-3e. T.D. 2,676 ft.; recvd. 2,132 ft. of D.P.

Grady County

Doyle Pet. Co. No. 1 Huffline, NW NW SE sec. 30-5-8w. Drlg.

Gulf Oil Corp. No. 1 Thomas, SW NW NW sec. 14-4-5w. Drlg. 9,129 ft. in bkn. L.&sh.

Grant County

Magnolia Pet. Co. No. 1 Reynolds, NE NE SE sec. 19-25-5w. Drlg. 3,695 ft.

Greer County

J. I. Medlin et al No. 1 Broudie, NW cor. sec. 5-6n-20w. T.D. 90 ft.; S.D.

Hughes County

Phillips Pet. Co. No. 1 Becker, NE NW SW sec. 8-5-10. Cromwell 4,398 ft.;T.D. 4,460 ft.; flwd. 146 B.O. in 19 hrs.; cutting 2% wtr. in last hr.; to deepen to Wilcox sd.

Pure Oil Co. No. 1 Rogers, SE SE NE sec. 18-8-12. Drlg. 4,829 ft.

Kay County

F. S. Freeland et al No. 1-A Watson, NE NW NW sec. 28-28-1w. Rig on ground.

E. W. Jones et al No. 1 Dorse, SE SW NW sec. 25-26-1w. Drlg. 2,800 ft.

E. J. Shaffer et al No. 1 McKee, NE NW sec. 20-28-1w. Drlg. 2,245 ft.

Kiowa County

Hughes & Reese No. 1 Fultz, SE cor. sec. 10-6-18w. T.D. 1,005 ft.; S.D.

Lincoln County

C. L. Carlock No. 1 Young, C N half NW NW sec. 23-15-5. T.D. 4,486 ft.; set 6⅝-in. at 4,439 ft.; bailing.

Logan County

Texas Co. No. 1 Roper, C W½ SW SE sec. 22-15-1e. T.D. 5,453 ft.; to take Halliburton test.

Okmulgee County

Phillips Pet. Co. No. 1 Wood, NW SW SW sec. 31-11-13. Spd.

Payne County

Mid-Continent Pet. Corp. No. 1 Ramsey, SW SW NW sec. 18-18-2e. Rig.

Stanolind O. & G. Co. and Amerada Pet. Corp. No. 1 Bennett, NE SW NE sec. 31-19-4. Drlg. 2,490 ft.

Pittsburg County

Okla. Dist. Oil Co. No. 1 Beeler, NE NE SW sec. 7-7-14. Dol. 5,980 ft.; a stain of asphaltic oil; drlg. 5,990 ft.

Phillips Pet. Co. No. 1 Gilcrease, NW NW SE sec. 16-7-12. T.D. 5,600 ft.; S.D.

Pontotoc County

H. W. Lee No. 1 Weatherly, NW SE NW sec. 24-1n-7. Rig.

Union Dev. Co. No. 1 Abbott, SW NW NE sec. 34-3-6. T.D. 3,320 ft.; drill pipe stuck; S.D.

Seminole County

W. C. McBride, Inc., No. 1 Jackson, NE SW sec. 16-6-7. Drlg. 1,080 ft.

W. B. Osborn et al No. 1 Harris, NW cor. sec. 11-6-5. T.D. 2,963 ft.; bailing.

Stanolind O. & G. Co. and Amerada Pet. Corp. No. 1 Salina, SE NE NW sec. 4-5-6. T.D. 3,317 ft.; P.B. 3,214 ft.; pmpd. 90 B.O. and 15 B.W. in 20 hrs.; comp.

H. V. Woodson and Marydun Oil Co. No. 1 Gilliland, SE SW sec. 24-11-7. Drlg. 852 ft.

Texas County

Hagey et al No. 1 Becker, C NE sec. 4-1n-13ecm. Spray S.W. 2,910 ft.; T.D. 3,010 ft.; to P.B.

Hagey et al No. 1 Peck, C NE sec. 6-1n-13ecm. Set 7-in. 2,766 ft.; W.O.C.

SOUTHERN OKLAHOMA

Atoka County

C. M. Sheldon and Gardner Pet. Co. No. 1 Lee, NE NW SW sec. 2-4s-10e. Drlg. L. 1,535 ft.

Bryan County

Southern Oil Co. No. 1 Henry, NW NW NE sec. 10-8s-7. Drk.

Carter County

Lloyd Noble No. 1 Revelle, SW SE sec. 31-3s-2w. Drlg. sh. 3,060 ft.

Choctaw County

V. K. Chapman and T. N. Low No. 1 Hallum, NE NW NW sec. 4-7s-20. C.O. 240 ft.

J. A. True No. 1 Boby, C NW SW sec. 17-7s-19e. R.U.R.

Coal County

Carter Oil Co. No. 1 Claytor, C W½ NE SW sec. 27-2n-9e. S.O. 6,460-67 ft.; in Dol.; drlg. 6,492 ft.

Phillips Pet. Co. No. 1 Beck, SE SW SW sec. 6-1n-9e. Drlg. 5,250 ft.

Cotton County

J. W. Amyx No. 1 Ash, SE cor. sec. 7-4s-10w. T.D. 1,263 ft.; D.&A.

Bowers & Wise No. 1 Pendergraft, NW SE SW sec. 4-4s-12w. Spd. 16 ft.; S.D.

Jefferson County

Massad & Swansberger No. 1 Barrett, NE SE SE sec. 14-6s-6w. T.D. 1,890 ft.; S.D.

Johnston County

Patton et al No. 1 McCrummins, C SW SW NE sec. 16-1s-6e. S.D. 1,380 ft.

W. T. Sheldon No. 1 Chapman, C NW NW sec. 26-4s-6e. T.D. 2,510 ft.; fsg.

Marshall County

Paul Robb et al No. 1 Vittitoe, C NE SE sec. 11-5s-4e. O.W.D.D.; C.O. to 720 ft.; S.D.

Murray County

Meyer & Greenup No. 1 Arbuckle, NW NW NE sec. 18-2s-3e. Spd. and S.D.

O. O. Owens No. 1 Fryer, NE SE NE sec. 34-1s-3e. T.D. 2,574 ft.; 1,400 ft. W.I.H.; S.D.

Sinclair Prairie Oil Co. No. 1 Lancaster Trust, C SW NE sec. 10-1-2e. T.D. 4,404 ft.; freeing stuck pipe.

Pushmataha County

Erle Halliburton et al No. 1 Bagwell, SW NE NE sec. 30-3s-15e. T.D. 6,010 ft.; S.D.O.

Stephens County

Coline Oil Co. No. 1 Johnson, C SW SE SE NE sec. 1-2n-8w. T.D. 10,000 ft.; P.B. 9,164 ft.; swbd. out to 6,700-ft. level; hole bridged; rng. sd. bailer.

Chas. Newsom No. 1 Pfile, SW cor. sec. 1-2s-7w. T.D. 3,551 ft.; S.D.O.

Ed Parsons and Olson Drlg. Co. No. 1 Blake, C SW NW sec. 22-2n-8w. Drlg. sdy. sh. 5,976 ft.

Tillman County

Cavens et al No. 1 Southerland, SW SW NW sec. 35-4s-16w. T.D. 44 ft.; S.D.

Tom Walker No. 1 Bowman, SW SW NW sec. 10-4s-17w. S.D. 200 ft.

ARKANSAS

Calhoun County

Hayner, Reaves & Hose No. 1 Brandon, SW NW SW sec. 34-11-13. T.D. 3,500 ft.; abd.

Clark County

Coker Oil Corp. No. 1 Coke, NW sec. 14-10-20. Drlg. 2,218 ft.

Columbia County

Kerr-Lynn Oil Co. No. 1 Barnett, sec. 14-17-20. Cg. 6,163 ft.

E. O. Olds No. 1 Dennis, NE SE SW sec. 4-17-21. S.D.; contr. depth 4,513 ft.; W.O.C.

Standard of La. No. 1 J. P. McKean, SW sec. 8-16-22w. Flwg. avg. 15 bbls. hrly.; T.D. 7,258 ft.; acd. 2,000 gals.; flwd. 286 bbls. in 6½ hrs.; T.P. 250 lbs.; C.P. 360 lbs., ¼-in. ck.

Tide Water-Seaboard Oil Co. No. 1 Crumpler, SW NE SW sec. 24-17-19w. Fsg. D.S.; T.D. 7,563 ft.

Dallas County

L. S. Gist No. 1 J. H. Goodgame, NW sec. 26-10-16. Drlg. 1,721 ft.

Miller County—Rodessa

W. C. Feazel No. 1 Farmer, SE sec. 13-20-28. Set 9⅝-in. csg. 2,069 ft.

L. Hawkins No. 1 Treadway, NE sec. 10-20-28. R.U.

H. L. Hunt No. 5 Womack, SW SW SE sec. 10-20-28. 7-in. 6,061 ft.; comp. 15 B.P.H., ½-in. ck.; T.D. 6,090 ft.

Rodger Lacy No. 1 Sartor, SE W½ sec. 15-20-28. Drlg. 4,062 ft.

Rodger Lacy No. 2 Grogan, NE E½ W½ sec. 15-20-28. Drlg. 3,645 ft.

W. M. Layton, No. 3 Terry, SE W½ W½ sec. 14-20-28. 7-in. 5,995 f.t; T.D. 6,096 ft.; comp. 65 B.P.H., open tbg.

McClanahan et al No. 2-B Capps, SW sec. 11-20-28. Drlg. 3,227 ft.

McClanahan et al No. 1 Eason, S½ NW SW sec. 12-20-28. Drlg. 5,910 ft.

McClanahan et al No. 2 T. J. Hopkins, C sec. 11-20-28. Set 7-in. csg. 6,040 ft.; T.D. 6,100 ft.

McMurray No. 1-A Thomas, NW E½ W½ sec. 13-20-28. Drlg. 6,008 ft.

McMurray No. 2-B Thomas, SW SW SE sec. 12-20-28. Drlg. 5,883 ft.

J. R. Ostrom No. 1 J. O. Gerrald, NW E½ sec. 15-20-28. C.O.; T.D. 6,079 ft.; arng. swab.

Parks et al No. 1 Gerrald, sec. 11-20-28 Set 7-in. csg. 6,169 ft.; swbg. to test 6,189 ft.

Potter Drlg. Co. No. 2 Larney, sec. 11-20-28. Drlg. 5,675 ft.

Skelly Oil Co. No. 1 Thomas, SW SE SW sec. 12-20-28. 7-in. 6,132 ft.; T.D. 6,140 ft.; comp. 18 B.P.H., ⅝-in. ck.

A. M. Sutton No. 1 Cross, SE cor. SE NE sec. 11-20-28. T.D. 6,100 ft.; rmg.

S. O. Thomason No. 1 Greer, SW SW NW sec. 11-20-28. O.T.D. 5,809 ft.; W.O. whipstock 3,500 ft.

Texas Canadian Oil Co. No. 1 Thomas, sec. 12-20-28. Arng. core 6,048 ft.

Nevada County

Benedum & Trees Oil Co. No. 2 Mary Jackson, NE cor. sec. 9-14s-20w. M.I. rig.

W. E. Lekey, Tr., No. 1 Purifey, NE sec. 17-11-20. T.D. 2,220 ft.; fsg.

Union Products & Pet. Co. No. 4 Haynie, NW sec. 6-14-20. Set 10-in. 100 ft.

Ouachita County

O. F. Whittacker No. 1 Guttry, NW sec. 21-15-19w. Comp. pump 10 B.P.D.; T.D. 2,180 ft.

O. F. Whittacker No. 2 Guttry, NW sec. 21-15-19w. Drlg. 900 ft.

Pike County

Beckwith & Cress No. 1 Hendrick, SW sec. 16-8s-25w. T.D. 353 ft.; T.A.

Pulaski County

A. L. Kitselman, No. 2 A. L. Kitselman, Jr., SE SE SW sec. 2-1s-13e. S.D. 1,490 ft.

Union County—Schuler

E. M. Jones No. 2 Marine Oil Co., SW NW SE sec. 17-18-17. Cg. 7,809 ft.

E. M. Jones No. 3 Marine Oil Co., NE NW SE sec. 17-18-17. Drk.

E. M. Jones No. 4 Marine Oil Co., SE SW SE sec. 17-18-17. Fsg. 7,029 ft.

Lion Oil Ref. Co. No. 1-A M. D. Justiss; NE NW NE sec. 19-18-17. Drlg. 6,485 ft.

Lion Oil Ref. Co. No. 1 Marine Oil Co., NE SE SW sec. 17-18-17. Drlg. 6,720 ft.

Lion Oil Ref. Co. No. 3-B Edna Morgan, NE NW SE sec. 18-18-17. Drlg. 5,870 ft.

Lion Oil Ref. Co. No. 4-B Edna Morgan, NW SW SE sec. 18-18-17. Drlg. 2,290 ft.

Lion Oil Ref. Co. No. 1-C D. and J. C. Morgan, NE SE SE sec. 18-18-17. Drlg. 4,780 ft.

Marine Oil Co. No. 3 fee, SW sec. 17-18-17. M.I. rig.

Marine Oil Co. No. 2 M. D. Justiss, sec. 18-18-17. Drlg. 6,314 ft.

Phillips Pet. Co. No. 1 E. Gan, SW SE NE sec. 18-18-17. Arng. run 7-in. csg.; T.D. 7,700 ft.

Phillips Pet. Co. No. 1 Jennings, NW SW NE sec. 18-18-17. Drlg. 4,624 ft.

Phillips Pet. Co. No. 2 Justiss, NW sec. 18-18-17. Drlg. 1,886 ft.

Phillips Pet. Co. No. 2 Marks, SW sec. 18-18-17. Drlg. 230 ft.

Alice Sidney Oil Co. No. 2 Morgan, SE NE SE sec. 18-18-17. 5-in. csg. 7,575 ft.; T.D. 7,700 ft.

Alice Sydney Oil Co. No. 3 Morgan, NW NE SE sec. 18-18-17. Drlg. 3,865 ft.

Union County—Other

Ark. So. Oil Co. No. 1 Simmons, SE NW sec. 15-18-18. W.O.S.R. 2,283 ft.

W. D. Winfield No. 2 Southern Kraft Corp., sec. 18-16-14. 7-in. 2,721 ft.; T.D. 2,728 ft.; D.&A.

LOUISIANA

NORTH LOUISIANA PROVEN

Caddo—Rodessa

Blackwell O. & G. Co. No. 3 Neugent, sec. 8-23-16. O.W.D.D.; T.D. 6,750 ft.; arng. to P.B.

F. W. Burford No. 2 Cleveland, C sec. 2-23-16. Drlg. 4,698 ft.

F. W. Burford No. 2 Terry, NE sec. 2-23-16. Drlg. 3,590 ft.

F. W. Burford No. 4 Terry, SE NE sec. 2-23-16. Set 7-in. at 6,005 ft.; Schlumberger.

F. W. Burford No. 1 U. S. Govt., NE SE SW sec. 6-23-16. T.D. 6,115 ft.; tstd. dry; to acd.

Gulf Ref. Co. No. 1 Allison, NW sec. 3-23-16. Drlg. 4,167 ft.

Gulf Ref. Co. No. 6 Curtis, SE sec. 19-20-15. R.U.

Long & Westbrook No. 1 Spearman, sec. 14-23-16. T.A. 2,480 ft.

Magnolia Pet. Co. No. 2 G. W. Hardy, NW SW sec. 1-23-16. O.T.D. 6,068 ft.; P.B. 6,010 ft.; 7-in. csg. 5,990 ft.; rng. Schlumberger.

Standard Oil of La. No. 1 Mrs. Alice N. Gibson, NW NE SW sec. 10-23-16. 7-in. 5,895 ft.; T.D. 5,947 ft.; comp. 450 B. P.D., 32/64-in. ck.

Standard Oil of La. No. 4 McCoy, NE SE NW sec. 10-23-16. Drlg. 4,669 ft.

R. G. Trippett et al No. 2 Davis, sec. 3-23-16. Comp. 17 B.P.H. on 21/64-in. ck.; T.D. 5,973 ft.

R. G. Trippett No. 1 Sharpe, NE cor. sec. 4-23-16. Drlg. 5,008 ft.

Union Prod. Co. No. 6 Starke, SW cor. sec. 8-23-16. T.D. 5,980 ft.; set 7-in. csg. 5,946 ft.

G. H. Vaughn No. 1 Sartor, NE sec. 3-23-16. R.U.

G. H. Vaughn No. 3 Yates, NW cor. sec. 2-23-16. Cg. 5,970 ft.

N. LOUISIANA WILDCATS

Bienville Parish

Gulf Ref. Co. No. 1 Goodpine, sec. 25-14-8. Prep. test 5,664-91 ft.

H. L. Hunt and Seaboard No. 1 Federal Ld. Bk., SW sec. 10-16-16. Drlg. 7,080 ft.

Bossier Parish

Premier Inv. Co. No. 1 McDade, SE SW NE sec. 28-19-11. Drlg. 760 ft.

Union Prod. Co. No. 1-B Kerr Unit, SE sec. 24-17-12. R.U.

Caddo Parish

W. D. Chew No. 3 Spell, NE SW SE sec. 29-21-15. W.O.S.R. 1,575 ft.

W. D. Chew No. 4 Spell, SE sec. 29-21-15. R.U.

W. P. Clark No. 1 Dyer, C sec. 10-20-16. Tstd. dry; W.O.; T.D. 2,279 ft.

Mrs. O. P. Clement No. 1-B Caddo Lvy. Bd., NE sec. 5-20-16. Setting csg. 2,160 ft.

L. I. Davis No. 2 Stiles, SE sec. 17-21-16. W.O.S.R. 1,023 ft.

Driscoll Jt. No. 1 Muslow, SE NW NE sec. 4-20-15. Cg. 2,135 ft.

W. Dromgoole No. 1 School Bd., SE NW sec. 16-19-14. 7-in. 2,425 ft.; W.O.S.R. 2,460 ft.

A. R. Hancock No. 2 Helpman, sec. 16-21-16. R.U.

W. H. Harrison No. 2 Shoreline Crystal,

SE NW NE sec. 23-21-16. 4½-in. 1,034 ft.; tstd. S.O. 1,041 ft.
Kiliam & Smith No. 3 Hart, SW sec. 29-21-16. T.D. 1,089 ft.; S.W.; abd.
La. Oil Prod. Co. No. 3-C Muslow, sec. 9-20-15. Drlg. sh. 1,780 ft.
La. Oil Prod. Co. No. 9-B Muslow. O.W. D.D.; T.D. 2,182 ft.; comp. 20 B.P.D.; pmpg.
Magnolia Pet. Co. No. 28 Robertshaw, SW NE sec. 23-21-15. 7-in. csg. 1,464 ft.; T.D. 1,471 ft.
O. O. Olsen No. 1 R. T. Sharp, W½ NW sec. 15-18-16. T.D. 5,609 ft.; arng. to test.
Prairie River Synd. No. 1 Hutchinson, SW NW sec. 15-15-12. S.D. 9,141 ft.
A. D. Robinson No. 1 Wilkinson, sec. 22-20-14. Set 10-in. 103 ft.
J. E. Sedberry No. 1 Dickinson, NW sec. 15-19-14. R.U.
J. J. Shulman No. 1 Hobbs, NW sec. 28-21-15. Setting 6-in. 1,400 ft.
P. A. Singlust No. 2 Starr-Brown, SE sec. 28-20-16. T.D. 1,820 ft.; tstd. S.W.; abd.
Texas Co. No. 1-A Caddo Lev. Bd., SE NE sec. 33-21-16. Pmpg. S.W.; S.O. 2,239 ft.
R. G. Trippett and D. C. R. O. Co. No. 5 School Bd., sec. 16-19-14. Set 10-in. csg. 103 ft.

Claiborne Parish

Atlantic Ref. Co. No. 2-C Patton, E½ SW SE sec. 29-21-4. Comp. 85 B.P.H., ¾-in. ck.; T.D. 5,203 ft.
Atlantic Refg. Co. No. 2-B Tatum, E½ NW SW sec. 32-21-4. Loc.
Crescent Drlg. Co. No. 1 Fowler, E½ SW NW sec. 33-21-4. Set 5½-in. 5,250 ft.; tstg. 5,282 ft.
Harry Hanbury No. 1-E R. Vaughn, S½ NE SE sec. 25-21-5. Drlg. 5,085 ft.
T. L. James & Co. No. 1 Tarver, C W½ NE NE sec. 32-21-4. R.U.
W. L. McClanahan No. 1 J. T. Lewis, W½ SW SE sec. 25-20-7. Drlg. 3,000 ft.
A. O. Olsen No. 1 English, E½ SE SE sec. 29-21-4. Set 7-in. 5,183 ft.; T.D. 5,204 ft.
A. O. Olsen No. 5-A Patton, NE SW sec. 30-21-4. Set 7-in. csg. 5,190 ft.; tstg.
A. O. Olson No. 6-A Patton Est., sec. 3-21-4. R.U.
C. R. Schuster No. 1 S. Lloyd, SW SW sec. 2-20-5. Drlg. 3,400 ft.
Scouts Oil Corp. No. 2 English, sec. 30-21-4. Drlg. 4,025 ft.
Sloan & Zook No. 1 M. S. Patton, sec. 1-20-5. Drlg. 4,796 ft.
Union Prod. Co. No. 2 Brownfield, sec. 5-19-5. O.W.D.D.; drlg. 7,585 ft.
Union Prod. Co. No. 1 Stevenson Kilpatrick. O.W.D.D.; drlg. 4,650 ft.
G. H. Vaughn No. 2 Eppinger, N½ SW SW sec. 29-21-4. Drlg. 5,060 ft.

La Salle Parish

T. & J., Inc. No. 3 Tulles, sec. 26-10-1e. Tstg. 1,525 ft.

Concordia Parish

Coastal Mineral & Dev. Co. No. 1 Winsten, sec. 23-7-9e. 7-in. 2,028 ft.; tstd. dry; S.D.

De Soto Parish

Clear Lake Oil Co. No. 1 J. A. Woolums, NW sec. 29-12-12. Wtg. on csg.; T.D. 2,690 ft.
Kingston Oil Co. No. 1 Scott, SE NE sec. 32-14-13. S.D. 2,777 ft.
Petroleum Heat & Power Co. No. 1 Kavanaugh, NW SW sec. 7-11-11. Drlg. 1,212 ft.
T. & J. Inc. No. 2 Tullos, SE NE sec. 26-10-1e. Set 6-in. csg. 1,514 ft.; T.D. 1,523 ft.; tstg.

Franklin Parish

Jenson & Bailey No. 1 Grayson, C NE sec. 36-12-6e. O.T.D. 2,516 ft.; tstd. S.W. 1,703 ft.

Lincoln Parish

Gulf Ref. Co. No. 1 M. Patton, C sec. 6-20-4. 7-in. csg. 5,245 ft.; to test 5,288 ft.
Magnolia Pet. Co. No. 1-B F. Corbin, N½ NW NW sec. 5-20-4. 7-in. 5,241 ft.; T.D. 5,257 ft.; tstg.
E. T. Oakes No. 1 Griggs, sec. 36-18-1w. Drlg. 3,565 ft.
Red Iron Drlg. Co. No. 2 T. F. Patton. NW SW NE sec. 6-20-4. 5½-in. csg. 5,228 ft.; tstg. 5,256 ft.

Red River Parish

Arkansas Fuel Co. No. 1 Frankland Realty Co., NW sec. 20-11-9. Drlg. 2,595 ft.
Glassell & Whitehurst No. 1 LeLong, NE NW NE sec. 25-12-11. Set 13⅜-in. csg. 250 ft.
J. F. Lent et al No. 1 Chicago Coal & Ld. Co., SE sec. 17-13-11. T.D. 1,613 ft.; 6-in. csg. 1,555 ft.; tstd. S.W.; abd.

Sabine Parish

Fox & Phillips No. 1 Cook Ld. Co., SW SE NW sec. 1-9n-12w. Cg. 3,135 ft.
Gold Oil Co. No. 1 Darby, N½ SE sec. 21-7-11. Tstg.; T.D. 2,586 ft.
Hunter Co. No. 1 Long Bell Lbr. Co., sec. 23-7-13. T.D. 2,234 ft.; 8-in. csg. 2,226 ft.
W. L. Posey No. 1 Burkett, sec. 10-9-13. Schlumberger test 2,021 ft.
Remine et al No. 1 4-L Co., SW SW sec 7-5-12. T.D. 5,022 ft.; rng. Schlumberger.

Tensas Parish

H. M. Jones No. 2 Chicago Mill & Ld. Co., NE SW sec. 31-12-10e. R.U.

Union Parish

Joe Modisett No. 1 Frost Lbr., sec. 14-21-1e. Drlg. 5,389 ft.

Webster Parish

V. L. Foster No. 2 J. M. Mixon, SE sec. 21-21-10. Drlg. 7,605 ft.
Magnolia Pet. Co. No. 1 Crichton Hrs., NE NW sec. 33-21-10. Drlg. 6,295 ft.
Magnolia Pet. Co. No. 7 Marshall, SW SE sec. 21-21-10. Drlg. 5,880 ft.
North American Oil Co. No. 1 Coyle, NE SW sec. 28-21-10. Drlg. 3,265 ft.
Ohio Oil Co. No. 2 Bodcaw Acct. 4, SW SE NW sec. 24-21-10. Drlg. 5,277 ft.
Ohio Oil Co. No. 48 Bodcaw Acct. 2, SE sec. 15-21-10. Drlg. 4,970 ft.
Ohio Oil Co. No. 23 Gray Acct. No. 1, SE sec. 27-21-10. Drlg. 1,150 ft.
Ohio Oil Co. No. 2 Warren Cox, SE sec. 23-21-10. Set 9⅝-in. csg. 5,570 ft.
Standard Oil Co. of La. No. 7 Mrs. M. F. Davis, NE NE NW sec. 23-21-10. 7-in. csg. 8,207 ft.; drlg. plugs 8,258 ft.
Standard Oil Co. of La. No. 2-B Mrs. M. E. Gray, NE NE NW sec. 26-21-10. 7-in. csg. 8,056 ft.; tstd. sh. 8,117 ft.
Stanolind O. & G. Co. No. 1 Pardee Co., SW NE sec. 36-21-10. R.U.
United Gas No. 6 Tillman, NE sec. 28-21-10. Drlg. 7,339 ft.
Woodley Pet. Co. No. 5-B M. E. Gray, sec. 27-21-10. Drlg. 6,175 ft.

SOUTH LOUISIANA FIELDS

Anse La Butte—St. Martin Parish

Anse La Butte Oil Corp. No. 1 Billeand, sec. 117-9s-5e. T.D. 832 ft.; 7-in. csg. 790 ft.; swb. S.W.; cmt. off bttm.; W. O.S.R.
Crusader Pet., Inc., No. 1 Central Oil Co., sec. 86-9s-5e. 10¾-in. csg. 465 ft.; drlg. sdy. L. rock.

Bay St. Elaine—Terrebonne Parish

F. J. LeBlanc No. 2 Wurzlow, sec. 17-22s-18e. S.D. 910 ft.
Texas Co. No. 15 State, sec. 20-22s-18e. Drlg. salt 5,614 ft.

Bayou Blue—Iberville Parish

Humble O. & R. Co. No. 5-A Wilberts, sec. 75-9s-10w. T.D. 4,534 ft.; salt; abd.

Bayou Cocotriz—Terrebonne Parish

Shell Pet. Corp. No. 3-B Realty, sec. 18-17s-15e. 16-in. csg. 117 ft.; drlg. sd. 9,182 ft.; rec. 23 bbls. of oil on D.S.T. 9,060-67 ft.; T.D. 9,500 ft.; oil sd.; I.P. 932 B.P.D., ¼-in. ck.

Bayou De Allemands—St. Charles Parish

Amerada Pet. Corp. No. 1 St. Charles Ld. Co., sec. 38-15s-20e. 10¾-in. csg. 2,698 ft.; drlg. sh. 8,211 ft.

Big Lake—Cameron Parish

Union Sulphur Co. No. 1 P. J. Hebert, sec. 18-12s-8w. 6⅝-in. csg. 8,441 ft.; T.D. 9,289 ft.; D.S. stuck; P.B.; S.D.; W.O.O.
Union Sulphur Co. No. 2 J. O. Hebert, sec. 18-12s-8w. Core sd. show oil 8,442-63 ft.; drlg. sd. 8,980 ft.

Black Bayou—Calcasieu Parish

Shell Pet. Corp. No. 36 Watkins, T.D. 5,033 ft.; run 7-in. csg.; I.P. 632 B.P.D., ¼-in. ck.
Shell Pet. Corp. No. 39 Watkins. Drlg. sdy. L. 2,171 ft.

Bosco—Acadia Parish

Superior Oil Co.-Pure Oil Co. No. 5 Larcade, sec. 35-8s-3e. T.D. 10,216 ft.; P.B.; strkd.; drlg. sh. 8,462 ft.

Cameron Meadows—Cameron

Burton-Sutton Oil Co. No. 20 School Ld., sec. 16-14s-13w. R.U.
Magnolia Pet. Co. No. 21 Cameron Meadows, sec. 21-14s-13w. 13⅜-in. csg. 1,173 ft.; drlg. sh. 3,738 ft.

Charenton—St. Mary Parish

Pan American Prod. Co. No. 1 Dolph, sec. 36-13s-9e. T.D. 7,185 ft.; 7-in. csg. 6,904 ft.; drlg. 7,369 ft.
Pan American Prod. Co. No. 1 Eucer, sec. 11-13s-9e. Drlg. sd. 7,468 ft.

Choctaw—Iberville Parish

Louisiana Crusader Oil Co. No. 1 E. B. Schwing, sec. 29-8s-11e. Drlg. sh. 5,675 ft.
Standard Oil Co. No. 8 Gay, sec. 52-9s-11e. Drlg. sh. 1,878 ft.

Darrow—Ascension Parish

Kiva Oil Co. No. 1 Duplessis, sec. 69-10s-2w. R.U.
Humble No. 12 Gumbel, sec. 33-10s-2e. 16-in. csg. 225 ft.; T.D. 5,433 ft.; rmg.

Dog Lake—Terrebonne Parish

Texas Co. No. 18 State, sec. 5-22s-16e. T.D. 7,606 ft.; P.B. 6,113 ft. to sdtrk.

Four Isle—Terrebonne Parish

Texas Co. No. 9 L.L.&E., sec. 24-21s-16e. T.D. 8,553 ft.; P.B. 3,881 ft.; sdtrk.; drlg. sh. and L. 6,357 ft.

Garden Island—Plaquemines Parish

Texas Co. No. 24 State, sec. 37-23s-33e. T.D. 5,426 ft.; 7-in. csg. 5,150 ft.; perf. 4,960-98 ft.; I.P. 364 B.P.D., 5/16-in. ck.

Gillis—Calcasieu Parish

Union Sulphur Co. No. 7 Kaufman, sec. 13-9s-8w. T.D. 7,079 ft.; 5-in. csg. 7,052 ft.; swbd. S.W.; P.B. to 6,898 ft.; swbd. S.W.; fsg. for screen; P.B. 7,057 ft.; sdtrkd.; T.D. 7,057 ft.; tstd.; gas; shut in; W.O.
Union Sulphur Co. No. 2 Mary McIvor, sec. 14-9s-8w. T.D. 7,165 ft.; 5-in. csg. 7,165 ft.; flwd. S.W.; make squeeze job.

Hackberry—Cameron Parish

W. T. Burton No. 3 Lewis, sec. 22-12s-0w. R.U.
W. T. Burton No. 1 Porter Ellender, sec. 27-12s-10w. T.D. 5,578 ft.; 7-in. csg. 4,950 ft.; P.B. 4,910 ft.; perf. csg. 4,891-4,907 ft.; swbd. dry; temp. abd.
W. T. Burton No. 2 Porter Ellender, sec. 27-12s-10w. Drlg. sh. 1,240 ft.
F. J. LeBlanc No. 1 Doiron, sec. 36-12s-10w. R.U.R.
M. P. O'Meara No. 1 Rigmaden heirs, sec. 22-12s-10w. Drk.
Stanolind O. & G. Co. No. 6 Duhon, sec. 22-12s-10. T.D. 4,756 ft.; 7-in. csg. 4,684 ft.; comp. as gas well.
Stanolind O. & G. Co. No. 7 Duhon. T.D. 3,696 ft.; 7-in. csg. 3,342 ft.; I.P. 71 bbls. 12 hrs., ¾-in. ck.
Stanolind O. & G. Co. No. 8 Carter & Sweeney, sec. 22-12s-10w. R.U.
Stanolind O. & G. Co. No. 10 Carter & Sweeney, sec. 22-12s-10w. Drk.
Stanolind O. & G. Co. No. 26 Gulf Ld., sec. 22-12s-10w. 10¾-in. csg. 1,644 ft.; T.D. 4,513 ft.; P.B. 3,175 ft.; sdtrkd.; T.D. 3,615 ft.; P.B. 1,800 ft.; W.O.C.
Stanolind O. & G. Co. No. 27 Gulf Ld., sec. 22-12s-10w. Drlg. sd. and L. 2,927 ft.
Texas Co. No. 3-B State, sec. 12-12s-9w. T.D. 7,695 ft.; P.B.; sdtrkd.; dry; sd. and L. 6,257 ft.
Union Sulphur Co. No. 1 Doiron, sec. 37-12s-10w. Drlg. sh. 3,065 ft.

Iowa—Jeff Davis Parish

Magnolia No. 13 Wait, sec. 12-9s-7w. Drlg. 350 ft.

Lockport-Cameron Parish

Magnolia Pet. Co. No. 35 Miller, sec. 9-10s-9w. Drlg. sh. 7,183 ft.

Jeanerette—St. Mary Parish

Herton Oil Co. No. 1 Teche Sugar Co., sec. 58-13s-8e. Drlg. sd. and L. 4,386 ft.

Jennings—Acadia Parish

Frank W. Bennett et al No. 1 Brethern and Christ Church, sec. 41-7s-2w. T.D. 7,070 ft.; 6⅝-in. csg. 6,990 ft.; comp. no gauge.
W. T. Burton No. 4 Roboria, sec. 41-9s-3w. T.D. 7,023 ft.; 7-in. csg. 7,023 ft.; failed to flow; P.B. 6,523 ft.; perf. csg. 6,442-6,502 ft.; tstg.
Crusader Pet., Inc., No. 1 E. H. Grace, sec. 45-9s-2w. 7-in. csg. 3,602 ft.; T.D. 3,811 ft.; caprock; set 301 ft. liner on bttm.; W.O.C.
H. Fostiades et al No. 1 Washington-Opelousas, sec. 41-9s-2w. Drlg. 50 ft.
Glassell & Glassell No. 4 Trushell, sec. 42-9s-3w. Broken sh. and L. 5,993 ft.
Gulf Ref. Co. No. 39 Arnaudit, sec. 47-9s-2w. Drlg. sh. and L. 4,434 ft.
Jolly Pet. Co. No. 2 McFarlain, sec. 41-9s-2w. Drk.
M. P. O'Meara No. 1 Moresi, sec. 41-9s-2w. Drlg. sh. and L. 4,445 ft.
Jolly Pet. Co. No. 5 Jennings-Haywood, sec. 46-9s-2w. Drk.
Reiter Foster Oil Co. No. 2 Crusel, sec. 42-9s-2w. T.D. 3,908 ft.; P.B. 3,746 ft.; tstg.
Shell Pet. Corp. No. 3 Community, sec. 40-9s-2w. Cg. sh. 6,533 ft.
Stanolind O. & G. Co. No. 19 Houssiere-Latrelle, sec. 47-9s-2w. Drlg. sd. and L. 4,892 ft.
Superior Oil Co. No. 1 Julis Clement, sec. 46-9s-2w. Drlg. sh. 4,800 ft.
Superior Oil Co. No. 8 Leckelt, sec. 42-9s-2w. T.D. 6,919 ft.; 7-in. csg. 6,848 ft.; I.P. 167 bbls. in 10 hrs.
Superior Oil Co. No. 7 Leckelt, sec. 42-9s-2w. Drlg. sh. 6,262 ft.
Superior Oil Co. No. 9 Leckelt, sec. 42-9s-2w. R.U.
Superior Oil Co. No. 3 Moresi, sec. 41-9s-2w. T. D. 6,748 ft.; stuck D.S.; sdtrkg. 5,038 ft.; T.D. 7,684 ft.; 7-in. csg. 6,744 ft.; comp.; no gauge.
Victor Weisse No. 1 Clement, sec. 46-9s-2w. Drlg. sh. 1,928 ft.

Lafitte—Jefferson Parish

Texas Co. No. 7 L.L.E., sec. 20-17s-24w. T.D. 10,275 ft.; 9⅝-in. csg. 10,275 ft.
Texas Co. No. 8 Rigolet, sec. 29-17s-24e. 13⅜-in. csg. 1,923 ft.; drlg. sh. 8,398 ft.

Lake Barre—Terrebonne Parish

Texas Co. No. 141 State, sec. 40-21s-19e. T.D. 3,641 ft.; 7-in. csg. 3,648 ft.; I.P. 363 B.P.D., ¼-in. ck.

Lake Hermitage—Plaquemines Parish

Gulf Ref. Co. No. 7 Lafourche, sec. 12-18s-25e. 7-in. csg. 8,074 ft.; cored sdy. sh.; oil odor; cg. 8,933 ft.

Lake Pelto—Terrebonne Parish

Texas Co. No. 13 State, sec. 8-23s-18e. T.D. 6,605 ft.; D.S. stuck; fsg.

Lockport—Calcasieu Parish

Magnolia Pet. Co. No. 35 Miller, sec. 9-10s-9w. Drlg. sh. 7,183 ft.

Lake Long—Lafourche Parish

Fohs Oil Co. No. 2 State, sec. 65-17s-19e. R.U.
Fohs Oil Co. No. 3 State, sec. 65-17s-19e. 10¾-in. csg. 2,743 ft.; T.D. 9,539 ft.; sd. 9,517-33 ft.; P.B. 9,464 ft.; W.O.C.; S.S.W.

Leesville—Plaquemines Parish

Texas Co. No. 63 Leesville, sec. 27-12s-22e. Drk.

Lirette—Terrebonne Parish

Humble O. & R. Co. No. 1 Frank Wurzlow, sec. 6-19s-19e. 13⅜-in. csg. 2,796 ft.; drlg. sdy. sh. 4,940 ft.

New Iberia—Iberia Parish

Wm. Hellis No. 3 Schwing, sec. 57-12s-7e. T.D. 5,019 ft.; P.B. and sdtrkd.; salt 5,509 ft.; P.B. 2,650 ft.; T.D. 3,949 ft.; 7-in. csg. 3,920 ft.; L. 4,524 ft.; T.D. 4,552 ft.; P.B.; sdtrk.; abd.; T.D. 4,442 ft.; salt.
Texas Co. No. 3 Bryant, sec. 25-12s-7e. Spudded.
Wm. Hellis No. 9 Bernard, sec. 54-12s-7e. T.D. salt 5,171 ft.; P.B. and sdtrkd., sd.&sh. 4,538 ft.; T.D. 4,661 ft.; salt; P.B.; sdtrk.; drlg. sh. 5,047 ft.
Wm. Hellis No. 10 Bernard, sec. 54-12s-7e. R.U.
Wm. Hellis No. 11 Bernard, sec. 54-12s-7e. T.D. 3,974 ft.; salt; sdtrk.; abd. 3,635 ft.
Texas Co. No. 1 Burke, sec. 56-12s-8e. Drlg. sh. 5,701 ft.

North Crowley—Acadia Parish

Humble O. & R. Co. No. 1 H. J. Habetz, sec. 45-8s-1e. Dig. pits.
Humble O. & R. Co. No. 1 Habetz, sec. 3-9s-1e. Drlg. sh. 8,438 ft.
Humble O. & R. Co. No. 1 L. Laumbrecht, sec. 4-9s-1e. Drlg. sh. 8,785 ft.

Roanoke—Jeff Davis Parish

Humble O. & R. Co. No. 9-B Devilbiss, sec. 11-9s-4w. T.D. 8,835 ft.; rng. 7-in. csg.; I.P. 28 B.P.H., ¼-in. ck.
Superior Oil Co. No. 1 Ferguson, sec. 13-9s-4w. Drlg. sdy. L. 5,667 ft.

Sorrento—Ascension Parish

Sorrento Oil Co. No. 1 L. L. Barnard et al, sec. 16-10s-4e. R.U.

South Elton—Jeff Davis Parish

Stanolind O. & G. Co.-Amerada Pet. Corp. No. 3-B Calcasieu Natl. Bank, sec. 27-7s-3w. R.U.

South Jennings—Jeff Davis Parish

Loffland Bros. No. 1 Fontenot, sec. 16-10s-3w. T.D. 9,003 ft.; 7-in. csg. 8,943 ft.; P.B. 8,904 ft.; perf. csg. 8,870-75 ft.; tstg.

Starks—Calcasieu Parish

Capital Oil Co. No. 1 Lutcher-Moore, sec. 24-9s-13w. R.U.
Lutcher Moore No. 3 fee, sec. 19-8s-12w. T.D. 4,361 ft.; 6⅝-in. csg. 4,351 ft.; W.O.C.

Sulphur—Calcasieu Parish

Union Sulphur Co. No. 853 fee, sec. 20-9s-10. T.D. 1,039 ft.; run 10¾-in. csg.; drlg. sd. and sh. 3,933 ft.
Union Sulphur Co. No. 852 fee, sec. 29-9s-10w. Drlg. sd. 3,689 ft.; T.D. 4,262 ft.; P.B. 3,750 ft.; sdtrkd.; drlg. sdy. sh. 4,166 ft.
Union Sulphur Co. No. 851 fee, sec. 29-9s-10w. Drlg. sh. 4,688 ft.

Valentine—Lafourche Parish

Pan American Prod. Co. No. 12 Harang, sec. 7-17s-20e. T.D. 6,889 ft.; abd.
Pan American Prod. Co. No. 13 Harang, sec. 8-17s-20e. 16-in. 210 ft.; drlg. sdy. sh. 6,164 ft.
Pan American Prod. Co. No. 14 Harang, sec. 9-17s-20e. 10¾-in. csg. 1,838 ft.; W.O.C.

Venice—Plaquemines Parish

Tide Water Oil Co. No. 4 Manhattan Fruit Co., sec. 26-21s-30e. Cored oil sd. 7,632 ft.; rng. 7-in. csg.
Tide Water Oil Co. No. 5 Manhattan Fruit Co., sec. 26-26s-30e. R.U.

Vinton—Calcasieu Parish

Katina Oil Co. No. 2 Vincent, sec. 34-10s-12w. T.D. 4,303 ft.; P.B. 3,316 ft.; W.O.C.
Superior Oil Co. No. 2 Levy, sec. 4-11s-12w. R.U.
Sutton-Burton No. 1 Calcasieu Natl. Bk., sec. 3-11s-12w. R.U.R.

White Castle—Iberville Parish

T. D. Humphray No. 1 E. B. Adams, sec. 1-11s-12e. S.D. 6,067 ft.; P.B. and sdrkd.; drlg. sh. 8,196 ft.
Shell Pet. Corp. No. 11 Wilbert. Drlg. sh. 1,331 ft.

S. LOUISIANA WILDCATS

Acadia Parish

H. E. Dalton No. 1 Setting, sec. 17-7s-1w. T.D. 5,106 ft.; P.B. to approx. 500 ft.; drlg. sh. 3,680 ft.
Gulf Oil Corp. No. 1 Euclia Broussard, sec. 49-10s-2w. Drlg. sh. 8,403 ft.
Humble O. & R. Co. No. 1 R. A. Sarver, sec. 35-10s-1e. T.D. 9,526 ft.; rmg.; 9⅝-in. csg. 7,550 ft.; drlg. sh. 9,757 ft.
Magnolia Pet. Co. No. 1 Duson, sec. 14-8s-2w. Drlg. sd. and sh. 8,543 ft.
T. S. Markley No. 1 Daigle, sec. 19-7s-2e. T.D. 8,506 ft.; abd.

Calcasieu Parish

D. & D. Oil Co. No. 2 Lutcher-Moore, sec. 1-8s-13w. T.D. 8,340 ft.; run 9⅝-in. csg.; drlg. plug; csg collpsd; T.D. 8,579 ft.; 1,747 ft. of 7-in. csg. cmtd. 8,579 ft.; drlg. sh. 9,345 ft.
Republic Prod. Co. No. 1 Sabine Tram. Co.,

LEGAL

Department of the Interior, United States Land Office, Las Cruces, New Mexico. Notice is hereby given that Lots 3 and 4, NE¼ SW¼ Sec. 31, T. 25 S., R. 37 E., N. M. P. M., New Mexico, containing 119.86 acres in the Jal Field, New Mexico, are offered to the responsible qualified bidder of the highest bonus per acre for lease under section 17 of the act of February 25, 1920 (41 Stat. 437), as amended by the act of August 21, 1935 (49 Stat. 674) at the royalty rate scale in the lease form shown in Circular 1386 at a sale to be held in the United States Land Office, Las Cruces, New Mexico, at ten o'clock, December 21, 1937. The successful bidder must deposit on the date of the sale a certified check on a solvent bank, or cash, for 1/5 of the amount bid, and file the showing of qualifications to receive a lease, required by section 7 of Circular 1386. The remainder of the bonus bid and the annual rental of $1 per acre must be paid prior to the issuance of the lease. The bidders are warned against violation of the provision of Sec. 59 of the United States Criminal Code, approved March 4, 1909, prohibiting unlawful combination or intimidation of bidders. The right is reserved to reject any and all bids at the discretion of the Secretary of the Interior. Register.

sec. 25-18s-14w. 10¾-in. csg. 1,981 ft.; T.D. 9,600 ft.; fsg.
Union Sulphur Co. No. 1 American Oil & Sulphur Co., sec. 16-10s-10w. R.U.
Wheeler Oil Corp. No. 2 Sch. Ld., sec. 16-9s-7w. R.U.

Cameron Parish

Humble O. & R. Co. No. 1 Miami Corp., sec. 8-14s-5w. 20-in. pipe set 188 ft.; T.D. 8,957 ft.; 9⅝-in. csg. 7,100 ft.

Cameron Parish—Gulf of Mexico

Superior Oil Prod. Co. et al No. 1 State-Gulf of Mexico, 3,800 ft. W, 6,200 ft. S of SE cor. of irregular sec. 4-15s-8w. 10¾-in. csg. 1,157 ft.; drlg. sh. 6,711 ft.; cut side wall cores 5,115-85 ft.; showed oil sd.

East Baton Rouge Parish

Cavalier Oil Co. No. 1 Elliott, sec. 3-9s-2e. Drlg. sh. 6,937 ft.

Evangeline Parish

Schlicher Prod. Co. No. 1 J. A. Perkins, sec. 35. Top salt 4,924 ft.; drlg. salt 4,924 ft.; S.D.

Iberia Parish

Texas Co. No. 2-B Vermilion Bay, sec. 20-16s-5e. T.D. 8,971 ft.; fsg.

Jefferson Parish

Triangle Oil Co. No. 1 Conroe, sec. 125-12s-11e. T.D. 3,752 ft.; D.S. stuck.

Jefferson Davis Parish

Continental Oil Co. No. 1 Faye, sec. 31-10s-3w. 10¾-in. csg. 1,999 ft.; drlg. sh. 8,657 ft.
Humble O. & R. Co. No. 1 T. S. Stegall, sec. 20-9s-5w. 13⅜-in. csg. 2,032 ft.; drlg. sd. 6,646 ft.
Union Sulphur Co. No. 1 Calcasieu National Bank, sec. 12-9s-6w. Cg. 8,315 ft.; sd. oil odor cored 8,295-8,305 ft.

Lafourche Parish

Amerada Pet. Corp. No. 1 South Coast Corp., sec. 34-15s-19e. T.D. 8,745 ft.: 9⅝-in. csg. 7,636 ft.; drlg. sh. 9,638 ft.
Gulf Oil Corp. No. 3 State P.P., sec. 36-23s-21e. Recvd. 1,000 ft. of oil on 6 min. D.S.T. at 6,749-6,846 ft.; 9⅝-in. csg. 6,832 ft.; drlg. 7,121 ft.; rec. 2,000 ft. P.L.O. on D.S.T. 6,958-70 ft.; T.D. 7,269 ft.; P.B. 6,971 ft.; top salt 7,741 ft.; T.D. 8,728 ft.; salt; using hole for geophysical work.
Wm. Helis No. 2 City of New Orleans, sec. 19-23s-23e. 10¾-in. csg. 2,646 ft.; top salt 7,946 ft.; drlg. salt 9,020 ft.

Plaquemines Parish

Gulf Oil Corp. No. 3 State (Jackson dist.) T.D. 8,144 ft.; rec. 1,500 ft. P.L.O. on D.S.T. 8,127-44 ft.; 9⅝-in. csg. 8,144 ft.; cored broken sd. and sh.; oil show 8,-144-75 ft.

St. Bernard Parish

Southern Sulphur Co. No. 2 State Lake Borgne, sec. 38-14s-15e. 13⅜-in. csg. 303 ft.; T.D. 3,461 ft.; 7-in. csg. 3,461 ft.; drlg. sh. 3,809 ft.; no report.
Texas Co. No. 4 State, sec. 14-10s-9e. Drive piling.

St. Martin Parish

Shell Pet. Corp. No. 1 Unit, sec. 11-14s-12e. M.I.
Texas Co. No. 10 St. Martin, sec. 15-8s-7e. Drlg. sh. 8,599 ft.

St. Mary Parish

Shell Pet. Corp. No. 1 Barbour, sec. 21-15s-12e. Drlg. sh. 8,489 ft.
Texas Co. No. 1 State-Bateman Lake, sec. 21-16s-12e. 7⅝-in. csg. 10,515 ft.; T.D. 11,879 ft.; soft formation; P.B. 11,100 ft.; stuck 5¾-in. csg. while running to 10,745 ft.; cutting and pulling csg.

TEXAS

Week Ending November 27

GULF COAST FIELDS

Lockridge—Brazoria County

Gulf Oil Corp. No. 1 Great Southern, E. D. Robertson Sur. 9⅝-in. csg. 7,145 ft.: T.D. 9,227 ft.; fsg.; P.B. and sdtrkd.; drlg. sh. 9,446 ft.
Kirby Pet. Co. No. 2 Carrie Baker, J. W. Hall Sur. 10¾-in. csg. 1,400 ft.; T.D. 6,367 ft.; perf. csg. 6,364-66 ft.; gas well shut in.
McCurdy and Johnson No. 1 State, Brazos River. Drlg. Sd.&L. 4,519 ft.; sdtrkd. hole; T.D. 6,385 ft.; perf. csg.
Shell Pet. Corp. No. 5-A Ramsey, J. W. Hall Sur. Drlg. sh. 4,119 ft.
Shell Pet. Corp. No. 3-B Ramsey, J. W. Hall Sur. No. 10. M.I.M.

Old Ocean—Brazoria County

Harrison & Abercrombie No. 2 Armstrong, Polly & Chance Sur. Drlg. sh. 8,069 ft.
Harrison & Abercrombie No. 1 Copeland-Osborne C. Breen Sur. Cg. 10,797 ft.

Sandy Point—Brazoria County

H. J. DeArman No. 1 Edmundson, D. Talley Sur. T.D. 6,606 ft.; 5½-in. csg. 6,520 ft.; P.B. 6,500 ft.; perf. csg.; 6,505-90 ft. showed S.W.; perf. csg. 6,557-65 ft.; tstg.

West Columbia—Brazoria County

Texas Co. No. 18 Abrams, George Tennille Sur. R.U.
Texas Co. No. 1 Goldman, G. Tennille Sur. T.D. 1,162 ft.; W.O.C.
Texas Co. No. 88 Hogg, George Tennille Sur. T.D. 2,964 ft.; P.B. 2,895 ft.; 7-in. csg. 2,875 ft.; I.P. 238 B.P.D., ¼-in. ck.
Texas Co. No. 5 Phillips, George Tennille Sur. Cg. sh. 5,665 ft.
Texas Co. No. 3 Smith, G. Tennille Sur. R.U.

Calhoun—Heyser—Victoria County

Blanco Oil Co.-Buchannan No. 3 C. S. Dunnwoody, A. Sisneros Sur. T.D. 5,-605 ft.; 7-in. csg. 5,602 ft.; tstd. gas.
Blanco Oil Co. No. 5 Dunnwoody, A. Sisneros Sur. Drlg. sh. 2,495 ft.
George Echols No. 3 Lander, J. Galban Sur. Drlg. sh. 3,690 ft.
Gulf Oil Corp. No. 1 Bonner, J. E. Galban Sur. Drlg. L. 5,230 ft.
Gulf Oil Corp. No. 1 T. P. Traylor, J. E. Galban Sur. 7-in. csg. 5,580 ft.; T.D. 6,037 ft.; oil sd.; I.P. 10 B.P.H., ¼-in. ck.
Humble O. & R. Co.-Plymouth Oil Co. No. 5 Marshall, A. Sisneros Sur. T.D. 5,490 ft.; rng. csg.
Humble O. & R. Co. No. 18-B P. H. Welder, A. Sisneros Sur. R.U.
Magnolia Pet. Co. No. 3 O. M. Lander, J. E. Galban Sur. R.U.
Normandie Oil Co. No. 8 J. G. Cook, A. Sisneros Sur. R.U.
Normandie Oil Co. No. 9 Cook, A. Sisneros Sur. T.D. 5,743 ft.; I.P. 146 B.P.H., ⅛-in. ck.
Portilla Drlg. Co. No. 11 C. P. H. Welder, A. Sisneros Sur. T.D. 6,133 ft.; abd.
Sinclair Prairie Oil Co. No. 2 W. G. Bennett, A. Sisneros Sur. T.D. 5,739 ft.; rng. csg.
Sinclair Prairie Oil Co. No. 5 Bennett, A. Sisneros Sur. Drlg. sh. 3,105 ft.
Sun Oil Co. No. 4 Coffey, J. E. Galban Sur. T.D. 1,000 ft.; W.O.C.

Seabreeze—Chambers County

Sun Oil Co. No. 1 Hoffman, T&N.O. Sur. 131. Drlg. sh. 7,737 ft.
Sun Oil Co. No. 2-A Hebert-Broussard, T.&N.O. Sur. 127. Drlg. sh. 7,069 ft.

Hitchcock—Galveston County

N. W. Hunter No. 1 Maco Stewart, J. Spillman Sur. T.D. 5,157 ft.; 7-in. csg. 5,157 ft.

Silsbee—Hardin County

Republic Prod. Co.-Houston Oil Co. No. 1, G. W. Brooks Sur. Spd.
Republic Prod. Co.-Houston Oil Co. No. 24 Brooks, G. W. Brooks Sur. T.D. 6,-321 ft.; cutting and pulling drill stem.
Republic Prod. Co.-Houston Oil Co. No. 25 Brooks, G. W. Brooks Sur. T.D. 6,-940 ft.; comp.; no gauge.

Fairbanks—Harris County

Amerada-Stanolind O. & G. Co. No. 1-B Dopslauf, W.C.R.R. Sur. No. 2. Blk. 1. 16-in. csg. 64 ft.; drlg. sh. 3,530 ft.

Clinton—Harris County

Stanolind O. & G. Co. No. 1 M. E. Oates, Reels & Trobough Sur. Drlg. sh. 3,830 ft.

Friendswood—Harris County

Gulf Bd. Oil Co. No. 1 E. B. Ross, G. B. Burnett Sur. Drlg. sh. 4,937 ft.
Humble O. & R. Co. No. 1 Cox, Perry and Austin Sur. Drlg. 108 ft.
Humble O. & R. Co. No. 1 Hicks-Hoidale, Perry and Austin Sur. T.D. 6,055 ft.; 5½-in. csg. 6,035 ft.; I.P. 27 B.P.H., ¼-in. ck.
Humble O. & R. Co. No. 1 Jones & May, Perry and Austin Sur. T.D. 6,188 ft.; abd.
Humble O. & R. Co. No. 1 Kiesling, T. Choate Sur. R.U.
Humble O. & R. Co. No. 1 Gail Whitcomb & Grandstaff, T. Choate Sur. Drlg. sh. 539 ft.
National Standard Oil Co. No. 1 Coward, Perry & Austin Sur. Loc.

LaBelle—Jefferson County

Sun Oil Co. No. 1 John Ward, 933 ft. S of No. 2 Broussard, Wm. Burton Sur. 18⅝-in. csg. 109 ft.; 9⅝-in. csg. 8,538 ft.; 7-in. csg. 9,951 ft.; T.D. 10,147 ft.; cmtd. off bttm.; perf. csg. 8,545-90 ft.; failed to flow; pulled tbg.; rmg. to reperf. csg.

Hardin—Liberty County

Jack Frazier No. 2 Lynott & Buffam, J. Robson Sur. R.U.
Jack Frazier No. 1 Buffam-Benning, J. Robeson Sur. R.U.
Gulf Oil Corp. No. 1 V. B. Hinson, H. B. Johnson Sur. 10¾-in. csg. 1,908 ft.
Halliburton Oil Prod. Co. No. 1 Hanchey, H. B. Johnson Sur. R.U.
Humble O. & R. Co. No. 1 Chambers, A. B. Hardin Sur. Drlg. sh. 3,583 ft.
Jameson-Bryon No. 1 W. B. Hinson, H. B. Johnson Sur. Drlg. sh. 6,027 ft.
Strake Pet. Corp. No. 3 Finley, A. B. Hardin Sur. Drlg. sh. 6,470 ft.
Strake Pet. Corp. No. 2 W. T. Finley, A. B. Hardin Sur. Cg. sd. 7,558 ft.
Sun Oil Co. No. 1 Cessna, A. B. Hardin Sur. R.U.
Woodley Pet. Co. No. 4 McMurtry, H. B. Johnson Sur. T.D. 7,597 ft.; 7-in. csg. 7,597 ft.

South Call—Newton County

Houston Oil Co. No. 2 Sabinetram. 10¾-in. csg. 1,936 ft.; tstd. S.W. on D.S.T. 6,895-6,909 ft.

Bay City—Matagorda County

Hamman Expl. Co. No. 1 Sloan, J. T. Belknap Sur. 10¾-in. csg. 1,200 ft.; drlg. sh. 4,812 ft.
Smith and McDannald No. 1 Gaines, E. Hall Sur. Drlg. sh. 7,447 ft.

Buckeye—Matagorda County

United North & South Development Co. No. 1 G.B.M., Cotton Lge. 7-in. csg. 8,-667 ft.; cg. 10,474 ft.

Palacios—Matagorda County

Atlantic-McCarthy No. 3 Foley Ld. Co., L. Goodwin Sur. Drk.
Glenn McCarthy No. 2 Foley, L. Goodwin Sur. T.D. 8,590 ft.; sdtrk.; T.D. 8,548 ft.; cmtd. 5-in. liner; perf. csg. 8,520-35 ft.; flwg. gas and dist.
Sun Oil Co. No. 1 Bay Shore Farms, Lewis Goodwin Sur. T.D. 11,327 ft.; 7-in. csg. 11,300 ft.

Orange—Orange County

Glenn McCarthy No. 1 Brown, B. Graner Sur. Drlg. sh. 4,885 ft.
Union Prod. Co. No. 2 Lutcher-Moore, Dyson Sur. R.U.

Segno—Polk County

Gulf Ref. Co. No. 2 Wing, I.&G.N. Sur. No. 15. Drlg. sh. 720 ft.

Spurger—Tyler County

Republic Prod. Co. No. 6 Hurd, N. Hurd Sur. Drlg. sdy. sh. 6,182 ft.

Keeran Field—Victoria

Union Oil Co. No. 8 Keeran Est., M. DeLeon Sur. Drlg. sh. 5,474 ft.

McFaddin—Victoria County

Barnsdall Oil Co. No. 1 J. A. McFaddin Est., Foster Lewers Sur. Drlg. sh. 1,-980 ft.

Telfener—Victoria County

Gulf Oil Corp. No. 1 Mahon and Buhler, W. C. Carroll Sur. T.D. 6,167 ft.; P.B. and sdtrkd.; T.D. 7,667 ft.; rmg.

Magnet—Wharton County

Atlantic Refining Co. No. 7-B H. C. Cockburn, Smith and McKenzie Sur. T.D. 5,540 ft.; 7-in. csg. 5,540 ft.
Humble O. & R. Co. No. 4 Cockburn, S. Castleman Sur. T.D. 5,538 ft.; perf. csg. 5,527-31 ft.; failed to flow; pulled screen.

GULF COAST WILDCATS

Brazoria County

Pure Oil Co. No. 1 Smith, S. F. Austin Sur. Drlg. sdy. sh. 6,114 ft.
Texas Co. No. 4 Freeport Sulphur Co., C. Arriola Sur. R.U.

Chambers County

Merit Oil Co. No. 1 T. & M. Wright, C. Smith Sur. T.D. 7,515 ft.; 7-in. csg. 6,602 ft.; perf. csg. 6,431-35 ft.; flwd. oil and S.W.; squeezed off perf.

Colorado County

O. C. Garvey No. 1 Buback-Ernest, M. Lapham Sur. Drlg. sh. and L. 4,688 ft.

Fort Bend County

Chapman Minerals Corp. No. 1 Sugarland Industries, Geo. Brown & Belknap Sur. S.D. 6,669 ft.

Grimes County

Hubert Holt No. 1 Greer et al, Patrick B. O'Connor Sur. Drk.

Hardin County

John Mayo No. 1 Hayden, W. K. Griffin Sur. Cg. sh. 4,200 ft.

Harris County

Amerada-Stanolind O. & G. Co. No. 1 E. M. Wells, A. Larson Sur. R.U.
H. C. Cockburn No. 1 White, Harris & Carpenter Sur. S.D. 5,000 ft.
H. J. DeArman No. 1 Geiseka, Isaac Bunker Sur. Drlg. sh. 1,012 ft.
Stanolind O. & G. Co. No. 2 Warren Minerals, Walker Wade Sur. Drlg. sh. and L. 5,223 ft.
Texas Gulf Prod. Co. No. 1 Rath, W. C. Sevey Sur. R.U.

Jackson County

Cockburn et al No. 1 Hodges, I.&G.N. Sur. No. 7. T.D. 6,525 ft.; abd.
Sam G. Harrison et al No. 1 H. A. Meyers, O. York Sur. 10¾-in. csg. 530 ft.; drlg. sh. 2,740 ft.
Magnolia Pet. Co. No. 1 West Ranch, R. Musquez Sur. R.U.

Jefferson County

Shell Pet. Corp. No. 1 W. P. McFaddin, S. A. Pace Sur. Cg. sd. showing oil 5,-439 ft.; recvd. 450 ft. of oil on D.S.T. 5,396-5,408 ft.
Lee Bros. No. 1 Wilson, C. L. Nash Sur. Abd. 7,012 ft.
Glenn McCarthy No. 1 J. E. Broussard, C. Hillbrand Sur. Spd.

Liberty County

Humble O. & R. Co. No. 1 E. J. Moore, M. Whittington Sur. Cg. sh. 5,586 ft.

Madison County

Faucett & Kyle No. 1 Bailey, T. Boatwright Sur. T.D. 600 ft.
W. H. Lawrence No. 1 Gustavis, J. Woodruff Sur. Drlg. sand 1,356 ft.

Matagorda County

Sun Oil Co. No. 1 Fred Robbins, C. H. Vandeveer Sur. Drlg. sh. 6,300 ft.

Polk County

National Standard Oil Co. No. 1 W. T. Carter, M. S. Womack Sur. R.U.
Stewart Oil Co. No. 1 Galloway, J. Ringgold Sur. R.U.

Trinity County

Gossage-Green & Thompson No. 1 R. E. Thompson, J. A. Hickey Sur. T.D. 1,164 ft.; S.D.
Funk-Walker-Bilnoski No. 1 Trinity State Bank, B. F. Wright Sur. R.U.

Waller County

J. Brian Eby No. 1 Wm. Rice Institute, H. Stephens Sur. S.D. 6,590 ft.
Stanolind O. & G. Co. No. 1 Security Trust Co., H.&T.C. Sur. Drlg. sh. and L. 6,-593 ft.

Wharton County

Strake Pet. Co. No. 1 Strunck, L. P. Jennings Sur. R.U.
Texas Co. No. 1 Johnson, John Bognad Sur. 10¾-in. csg. 1,095 ft.

S. W. TEXAS WILDCATS

Atascosa County

L. W. Steiren No. 1 Crawford, 4 mi. W of Anchorage. T.D. 3,476 feet; chalk; bailed down to 400 ft. brackish wtr.

Bastrop County

J. W. Bibb No. 1 Lentz, F. Wilkenson Sur. Cg. L., slight oil show 2,384 ft.
Hantho-Nelson, Inc., No. 2 Litton, Cedar Creek Community. S.D. 1,945 ft.
Sunrise Oil Co. No. 1 Smith, E. Standifer Sur. O.W.W.O.; old T.D. 2,486 ft.; S.D.

Bell County

W. H. Vernor No. 1 McQueen, 9 mi. S of Belton. S.D. 2,160 ft.

Caldwell County

Fain Gillock No. 1 Kelly, Berry Sur. Acd.; swbd. wtr. and oil; 5½-in. at 1,457 ft.; T.D. 1,706 ft.; swbd. dry; S.D.
McNeill Pet. Co. No. 1 Moreno, Allen Sur. T.D. 1,752 ft.; flwg. est. 25 bbls. oil per day; R.U. to pump.

Comal County

L. H. Wilson No. 1 Alexander, D. Benton Sur. Skdg. on.

DeWitt County

Ike Howeth No. 1 Gips, Moore Sur. T.D. 4,315 ft.; abd.

Dimmitt County

Teas & Maryland Corp. No. 1 McKnight, Blk. 13, sec. 23. T.D. 4,764 ft.; rng. 10-in. csg.

Duval County

T. R. Andrews No. 1 Hazelwood, Hopkins Sur. R.U.
J. L. Collins & Co. No. 1 E. H. Hagist, B.S.&F. Sur. S.D. 2,395 ft.
James Hougen No. 1 Patton, Sur. 148. Drlg. sh. 3,900 ft.
Magnolia Pet. Co. No. 1 D.C.R.C., Sur. 261. T.D. 3,755 ft.; abd.
Penn-Palangana Oil Co. No. 2 Schallert, Sur. 239. T.D. 3,302 ft.

Edwards County

Amon G. Carter No. 1 Sweeten, SE¼, Blk. 2, Sur. 49. Drlg. sh. 5,147 ft.
Dan Auld No. 1 Henderson, sec. 46, Blk. E. Drlg. sh. 1,587 ft.
C. V. Lyman No. 1 Brown, Blk. 3. Spdg.

Frio County

Pagenkopf & Jamieson No. 1 Houston Est., 2,254-ac. tr., J. Figuerroa Sur. S.O. 2,610-03 ft.; set csg. to test 7-in. at 2,480 ft.; swbg.; S.O.&G. and wash wtr.; T.D. 2,651 ft.; set csg.; P.B. 2,607 ft.; pmpd. 130 bbls. fluid per day, 90 per cent sulfur wtr.; tstg.

Goliad County

Goliad Oil Corp. No. 1-A Cole, Lot 33, Goliad town tr. T.D. 5,687 ft.; P.B. 5,609 ft.; perf. 5,080-5,100 ft.; would not flow.
Rual Swiger No. 1-B Wood. J. Shearn Sur. T.D. 5,048 ft.; S.W. sd.; oil sd. 5,044-48 ft.

Gonzales County

W. B. Osborn No. 1 Wells, Jose de la Baume Sur. 10-in. csg. 284 ft.

Guadalupe County

F. H. Gallagher No. 1 Howell, J. Darst Sur. No. 10. Loc.
Kreiger & Douglass No. 1 Oliver, R. Smith Sur. Drlg. sh. 900 ft.
Mehu Oil Corp. No. 1 Schulze, Chenault Sur. S.D. 1,705 ft.
Riddle Oil Co. No. 1 C. A. Krueger, James M. Thompson Sur. 10-in. csg. 20 ft.; drlg. sh. 693 ft.
Wellington Oil Co. No. 1 Koepp, W. H. Smith Sur. Set csg.; sat. ch. 1,572 ft.; T.D. 1,800 ft.; abd.

Hidalgo County

Atlantic Ref. Co. No. 1 American Rio Grande. 7-in. csg. 8,505 ft.; drlg. sh. 8,-611 ft.
Y. & B. Oil Co. No. 1 Waite, Tr. 382, Los Jidos Gr. T.D. 5,558 ft.; move in heavy rig; to resume drlg.

Jim Wells County

H. M. Hill et al No. 1 Kuether, Lots 70 and 75, sec. 52, Haldeman Subd. S.D. 2,881 ft.
Howell et al No. 1 Talbot, 181-ac. tr., Lavaca Gr. T.D. 6,012 ft.; P.B. 5,179 ft.; perf. csg. 3,595-3,610 ft. swbg.; show gas, some oil.
Magnolia Pet. Co. No. 7 Seeligson, 10,433-ac. tr., Los Jaboncillos Gr. T.D. 8,162 ft.; P.B. 6,770 ft.; perf. csg. 6,713-23 ft.; showed S.W.; making squeeze job.
H. J. Porter No. 1 Charles E. Walcott, Zenobia Cuellar Sur. 10¾-in. csg. 228 ft.; 10-in. csg. 516 ft.; drlg. sh. 2,745 ft.
Yukon Oil Co. No. 1 Shaeffer, Zenobia Cuellar Sur., sec. 11. 10¾-in. 228 ft.; drlg. sh. 4,548 ft.

Karnes County

Ivan Howard No. 1 Moczygemba, Erasmo Seguin 5. League Gr. Top sd S.O. 2,-159 ft.; oil sd. 2,174-78 ft.; set csg. 2,187 ft.; core sd. 2,400 ft.

Kenedy County

La Sal Vieja Oil Corp. No. 1 Garcia Ld. & Cattle Co., Blk. 95, Tr. 73. Drlg. sh. 7,052 ft.

Kleberg County

Cinco Oil Co. No. 1 Killam, Lot 8, Blk. 53, Kleberg Town & Imp. Co. Subd. R.U.

Magnolia Pet. Co. No. 1 Dietz, Gabriel Trevino Sur. Drk.

Superior Oil Co. No. 1 Koch, sec. 32, Blk. 26. Set surf. csg.; cg. S.W. sd. 4,640 ft.

LaSalle County

Ralph B. Reed No. 1 Yeager, Blk. 7, Sec. 8, Wallace Subd., Yeager ranch. Drlg. sh. 1,630 ft.

Lee County

Jas. E. Pederson No. 1 Turner, David Hudson Sur. S.O.&G. 6,140-80 ft.; sdtrkd. at 4,600 ft. and drld. to 6,132 ft.; S.O.&G.; set csg. 6,021 ft.; acdzg. with 20-bbl. load; when opened well flwd. 20-bbl. head and went dead; swbd. oil and wtr.; acd.; pmpg. small amount of oil; no gauge.

Live Oak County

James Chew No. 1 Alma McNeil, Alexander Parks Sur. R.U.

L. Franklin No. 1 Odem, R. Everitt Sur. T.D. 2,031 ft.; abd.

C. G. Grimes et al No. 1 W. A. Friedle, Refugio Co. Sch. Ld. Sur. S.D. 1,900 ft.

Ranco Oil Corp. No. 1 Cook Ranch sec. 3, J. Poitevent Sur. Drlg. sh. 1,830 ft.

V. G. Schimmel No. 1 West, sec. 59, Haas Sur. R.U.

McMullen County

Coyle & Bedwell No. 1 Two Rivers Rnch. Co., sec. 60. S.D. 10 ft.

Duncan Drlg. Co. No. 1 Martin Henry, sec. 6. T.D. 526 ft.; R.U. to deepen.

Glicrease Oil Co. No. 1 A. C. Meters, Charles Stevens Sur. T.D. 2,737 ft.; abd.

Medina County

M. L. Walker No. 1 Riff, Hans Sur. No. 43. Drlg. sh. 1,512 ft.

Milam County

Kingdor Expln. Co. No. 1 Stidham. T.D. 3,818 ft.; P.B. 3,765 ft.; swbd. sulfur wtr.; abd.

Nueces County

Culton & Meador No. 1 Bailey Est., Blk. 65, J. Elliff Subd., Joaquin Lopez de Herrera Sur. T.D. 6,138 ft.; S.D.

L. A. Douglas No. 1 Charles McKenzie, Sur. 419, R.U.

Mills Bennett Prod. Co. No. 1 Johnson, sec. 125, Paula Subd. T.D. 5,689 ft.; P.B. 5,111 ft.; swbd. oil and S.W.; swbg.; abd.

Richardson Pet. Co. No. 1 Cunningham, sec. 77. T.D. 5,306 ft.; 7-in. csg. 5,306 ft.; I.P. 100 B.P.D.

Sannix Oil Co. No. 1 Nesloney, 760-ac. tr., Casa Blanca Gr. Drlg. sh. 4,950 ft.

Union Prod. Co. No. 1 Simmons, 1,000-ac. tr., Agua Dulce Gr. Drlg. sh. 5,627 ft.

Refugio County

Hogan Oil Co. No. 1 Kelley, M. & A. Roache Sur. Cg. 6,050 ft.

San Patricio County

Argo Oil Corp. No. 1 Soehnge, 159.66-ac. tr., Blk. 11, Schleicher & Joseph Subd., Delgado Gr. T.D. 4,962 ft.; top sd. 4,957 ft.; well tried to blow out; killed to deepen; T.D. 6,310 ft.; set 7-in. protective csg. 6,200 ft.; swbg.

Rutherford O. Corp. No. 1 George, Lot 12, Geo. Paul Subd. Drlg. sh. 3,937 ft.

Starr County

Calderoni-James-Follette No. 1 Rodriguez, Blk. 6, Sh. 56, Porc. 80. Set 4½-in. csg. 1,483 ft.; T.D. 1,511 ft.; P.B. T.D. 1,756 ft.; S.D.; swbd. S.W.; abd.

Collins No. 1 Guerra, Sh. 6, San Jose Gr. S.D. 6,134 ft.; tstd. 385 ft. of oil, 385 ft. of S.W. on D.S.T. 6,122-34 ft.

Dodd Tr. No. 1 Wardner, Vela Sur., Porc. 84. S.D. 1,265 ft.

Sioux Oil Co. No. 6 Ricaby, Porc. 83. Drlg. 1,767 ft.; S.D.

Sun Oil Co. No. 1-F Guerra, Salvador Garcia heirs Sur., Porc. 109. Drlg. 3,390 ft.

Transwestern Oil Co. and Davenport No. 3 Slick, sec. 527, T.D. 6,862 ft.; rec. all but 75 ft. pipe; drlg. by csg.

Travis County

W. O. Caffey No. 1 Bremond, 104.5-ac. tr., Santiago del Valle Sur. S.D. 545 ft.

D. E. Hamer No. 1 Benson, Wilson Sur. S.D. 400 ft.

LaShell, Gardner & Wilson No. 1 Wilson, Blk. 1. S.D. 727 ft.

J. E. Mills No. 1 Washington, Navarro Sur. S.D. 1,196 ft.

Victoria County

W. V. Bowles No. 1 Robertson, T. C. Burnham Sur. T.D. 6,121 ft.; P.B. to sdtrk.

Stanolind O. & G. Co. No. 1 Henderson & Pickering. T.D. 7,468 ft.; P.B. 6,424 ft.; 7-in. csg. 6,423 ft.; perf. csg. to test.

Webb County

Bridwell Oil Co. No. 1 Billings, Sur. 36, M.I.M.

Kirkwood & Morgan No. 1 Garcia, Villareal Sur. 720. Drlg. 260 ft.

Lemp Oil Co. No. 1 Clark, 500-ac. tr., Porc. 33. Drlg. sdy. sh. 1,053 ft.

Lewis et al No. 1 Garza, Sur. 48. T.D. 2,215 ft.; S.D.

Mills Bennett Prod. Co. No. 1 Gates, Blk. 28, Sur. 200. Drlg. sh. 2,730 ft.

J. R. B. Moore No. 1 Garcia-Villareal, S. Mas Sur. Cg. 2,347 ft.

G. G. Mortimer No. 1 R. E. Welhausen, C.C.S.D.&R.G.N.G. Sur. No. 27. R.U.

Willacy County

Magnolia Pet. Co. No. 1 Armendiaz, Sh. 4, San Juan de Carricitos Sur. S.D. 7,144 ft.

Wilson County

Arnold, Dink, Stone & Haley No. 1 Black, 1,102.3-ac. tr., hrs. of Juan and Simon Arocha Sur. Drlg. sh. 985 ft.

Zapata County

Covle-Calloway No. 1 Flores, Porc. 37. No report.

Ray L. Martin No. 2 Vela, Sh. 4, E. L. Grullo Gr. 10-in. csg. 100 ft.

S. W. TEXAS PROVEN

McCampbell—Aransas-San Patricio Counties

Atlantic Ref. Co. No. 9-C McCampbell, Lot 2, Blk. 41. T.D. 7,130 ft.; 7-in. csg. 7,130 ft.; I.P. 209 B.P.D., ¾-in. ck.

Seven Sisters—Duval County

Rudco O. & G. Co. No. 1 Ellis, Sur. 308. Drlg. sdy sh. 2,330 ft.

Thomas-Lockhart—Duval County

Lockhart Bros. No. 1 Rogers, Sur. 277. Abd. 5,541 ft.

Chittim—Maverick County

Texas Gas Service Co. No. 6 Chittim, O.W.W.O.; O.T.D. 5,592 ft.; sdtrk. 5,400 ft.; trying to sdtrk.

Agua Dulce—Nueces County

Texon Roy. Co. No. 3 Driscoll-Sevier, Chapman Part., Palo Alto Gr. Drlg. sh. 5,781 ft.

Union Prod. Co. No. 1 Galliday, Agua Dulce Gardens Subd., Benton Pastures. T.D. 4,668 ft.; fsg.

Luby—Nueces County

Seaboard Oil Corp. No. 2 Shaeffer, Sh. 3, Blk. 2, Luby Subd. T.D. 6.059 ft.; 7-in. csg. 5,049 ft.; perf. 5,053-64 ft.; I.P. 178 B.P.D., ½-in. ck.

Stanolind O. & G. Co. No. 4 McCann, Falcon Sur. 7-in. csg. 5,043 ft.; I.P. 145 B.P.D.

LaSal Vieja—Willacy County

Shell Pet. Corp. No. 2 Yturria, Sh. 64, Carricitos Gr. Cored sd. 8,328 ft.

Batesville—Zavalla County

Wilcox O. & G. Co. No. 2 Gillam, G.W.T. &P.R.R. Sur. Drlg. chalk 3,395 ft.

EAST TEXAS

(Border Counties)

Cass County

Bay Oil Corp. No. 4 Cobb, G. Crowder Sur. Set 7-in. 6,028 ft.; tstg. 6,091 ft.

W. C. Feazel No. 1 Parker, G. Crowder Sur. T.D. 6,090 ft.; rng. Schlumberger.

Union Prod. Co. No. 3 Bangus Unit, Tromwell Sur. Drlg. 2,062 ft.

Union Prod. Co. No. 1 Carter et al, Holmes Sur. Drlg. 5,554 ft.

Union Prod. Co. No. 5 fee 575, B. Holmes Sur. Sd. 6,039-51 ft.; 7-in. csg. 6,002 ft.; T.D. 6,070 ft.; rng. Schlumberger.

Union Prod. Co. No. 4 J. S. Hall, J. N. Jackson Sur. Rmg.; T.D. 6,087 ft.; ran 7-in. csg. 6,076 ft.; rng. Schlumberger.

Union Prod. Co. No. 3-A Starke, D. Gilliam Sur. Fsg. 6,050 ft.

Marion County—Rodessa

Arkansas-Louisiana Gas Co. No. 2 Wade Houston, Coy Sur. Drlg. 3,674 ft.

Geo. Barham No. 1 Brantley, Bennington Sur. Drlg. 975 ft.

Fohs Oil Co. No. 1 Kemper, Bennington Sur. R.U.

Fohs Oil Co. No. 1 W. T. Neilon, SE cor. 70-ac. Neilon Sur. 7-in. 6,074 ft.; T.D. 6,090 ft.; comp. 390 B.P.D.; T.D. 6,090 ft.

Gulf Ref. Co. No. 1 Grubaugh, Coy Sur. Drlg. sh. 3,561 ft.

Gulf Ref. Co. No. 1 Kemper, Bennington Sur. Drlg. 2,170 ft.

Heyser-Heard & Clardy No. 1 L. Henderson, R. Bennington Sur. 7-in. 6.000 ft.; T.D. 6,030 ft.; comp. 91 B.P.H., open tbg.

Holcomb & Thomasson No. 1-B L. Henderson, U. Ewing Sur. T.D. 6,044 ft.; set 7-in. csg. 6,005 ft.; rng. Schlumberger.

Mid-Continent Pet. Corp. No. 4 Sory, A. D. S. Coy Sur. Tstd. 6,000,000 ft. gas; spray oil; tstg.; T.D. 6,082 ft.; comp. 852 B.P.D., open tbg.

Shell Pet. Corp. No. 1 Cooke, R. Bennington Sur., 80-ac. tr. Drlg. 5,084 ft.

Shell Pet. Corp. No. 1 L. Henderson Unit, R. Bennington Sur. Drlg. 5,411 ft.

Shell Pet. Corp. No. 1-B Henderson, Bennington Sur. Set 9⅝-in. csg. 1,975 ft.

H. B. Turner et al No. 1 Scuddy, Ina Hanks Sur. Drlg. 2,510 ft.

Panola County

Danciger O. & G. Co. No. 1 Tatum, A. Bissell Sur. T.D. 6,514 ft.; perf. csg. 5,253-49 ft.; tstd. S.W.; T.D. 6,514 ft.

Magnolia Pet. Co. No. 2 E. A. Hull, Thos. Applewhite Sur. T.D. 8,717 ft.; fsg. for D.P.

WEST TEXAS WILDCATS

Andrews County

M. S. Forgeron et al No. 1 Lockhart & Brown, C NE¼ sec. 20, Blk. A-41, P.S.L. Sur. S.D. 179 ft.

Gulf Oil Corp. No. 1 State, sec. 8, Blk. 14. Drlg. 4,258 ft.

Honolulu Oil Co. No. 1-6 Parker, sec. 6, Blk. A-66, P.S.L. Sur. Drk.

Bailey County

Duffey & Etz No. 1 Enochs, Tract 66, League 182, Floyd Co. School Lands Sur. T.D. 3,730 ft.; fsg.

Borden County

Continental Oil Co. No. 1-A Clayton, sec. 27, Blk. 32, Twp. 4n, T.&P. Sur. Drlg. 1,750 ft.

Brewster County

F. C. Dodson No. 1 Texas American Synd., sec. 66, Blk. 10, G.H.&S.A. Sur. Drlg. 6,115 ft.

Storey No. 1 Wilson, sec. 3, Blk. 212, T.& St.L. Sur. S.D. 2,545 ft.

Cochran County

P. N. Wiggins et al No. 1 Dean, NE cor. League 58, Martin Co. School Lands. T.D. 5,020 ft.; swb. 7 B.P.H.

Pete Wiggins et al No. 1 C. Slaughter Dean, C Lab. 26, League 92, Lipscomb Co. Sch. Ld. S.D.; W.O. 5,085 ft.

Concho County

Sam Murray No. 1 R. G. Armor, sec. 105. T.&N.O. Sur. Spudded and S.D.

Coke County

Barnett Pet. Co. No. 1 J. R. Mims, sec. 39, Blk. W, T.&P. Sur. Drlg. 1,210 ft.

H. E. Ogden et al No. 1 Rawlins, sec. 390, Blk. B-21. T.D. 525 ft.; prep. to D.D.

Crane County

Wilcox O. & G. Co. No. 1 McKnight, sec. 9, Blk. 46, Twp. 3s, G.M.M.B.&A. Sur. T.D. 6,177 ft.; pipe stuck; fsg.

Crockett County

Moore Bros. No. 1 Perner, sec. 37, Blk. 2, I.&G.N. Sur. Drlg. 7,521 ft.

Stewart & Cormas No. 1 Hoover, sec. 1, Blk. FF, B.B. Sur. S.D. 1,800 ft.

Culberson County

Grisham & Hunter No. 1 fee, sec. 14, Blk. 42, P.S.L. Sur. M.I.S.T.

C. A. Jarrell et al No. 1 C. M. Caldwell, C of SW¼ sec. 15, Blk. 100, P.S.L. Sur. S.D. 507 ft.; H.F.O.

Dawson County

R. Albaugh No. 1 D. Hogg, SE of SE sec. 17, Blk. 34, Twp. 4n, T.&P. Sur. D.&A.

Dickens County

C. E. Litchfield No. 1 Harris, sec. 354, Blk. 1, H.&G.N. Sur. S.D. 1,602 ft.

J. F. Morrisey et al No. 1 C. L. Bird, sec. 290, Blk. 1, H.&G.N. Sur. Drlg. 1,860 ft.

Edwards County

A. P. Carter No. 1 F. D. Sweeten, S&E sec. 48, Blk. 2, B&B Sur., 1½ mi. E of Rock Spgs. T.D. 5,112 ft.; prep. D.D.

Fisher County

I. J. Allen No. 1 H. S. Newman, Lot 49, Bastrop Co. Sch. Lds. Drlg. 3,450 ft.

Bond Oil Corp. No. 1 N. Bertram, 1 mi. S of Sylvester. Drlg. 2,580 ft.

Consolidated Oil Co. et al No. 1 Florida. Drlg. 3,485 ft.

Dean Bros. No. 1 Young, S.D. 925 ft.

General Crude Oil Co. No. 1 Morrow, sec. 185, Blk. 2, H.&T.C. Sur. T.D. 3,496 ft.; W.O.C.S.

Floyd County

Mills Bennett No. 1 T. Montgomery, F. J. Latham Sur., 6 mi. S of Floydada. Drlg. 958 ft.

Gaines County

Continental Oil Co. No. 2 Jones, sec. 1, Blk. A-8, P.S.L. Sur. Fsg. 4,734 ft.

Mitchell & Sullivan No. 1 Shell, T. S. Riley, sec. 447, Blk. G, C.C.S.D.&R.G. N.G. Sur. Drlg. 3,790 ft.

Shell Pet. Corp. No. 1 Robertson, sec. 344, Blk. G. Drlg. 4,910 ft.

Shell Pet. Corp. No. 1 M. B. Robinson, sec. 344, Blk. G, C.C.S.D.&R.G.N.G. Sur. Loc.

Garza County

M. L. Richards No. 1 Slaughter. S.D. 2,263 ft.

Glasscock County

O. B. Greathouse No. 1 Burns, sec. 221, Blk. 29, W.&N.W. Sur. Loc.

Hockley County

The Texas Co. No. 2 Slaughter, Labour 92, League 37, Zavalla Co. Sch. Lds. Cg. 4,562 ft.

Howard County

W. F. McDermott et al No. 1 Lucas, sec. 18, Blk. 29, Twp. 1n, T.&P. Sur., 5 mi. N of Dodge pool. S.D. 2,308 ft.

Hudspeth County

Haymon Krupp Oil & Ld. Co. No. 1 Thaxton, SE¼ sec. 34, Blk. 74, Twp 6. Drlg. 3,259 ft.

Haymon Krupp No. 1 Briggs, sec. 24, Blk. 73, Twp. 7, T.&P. Sur. Drlg. 1,590 ft.

Jeff Davis County

H. D. Wilcox et al No. 1 Jones-Coffield. Drlg. 3,400 ft.

Loving County

Barnett Pet. Co. No. 1-A Johnson, sec. 2, Blk. 57, Twp. 1, T.&P. Sur. W.O.C.S. 3,554 ft.

Carpenter & Griesson No. 1 Mrs. Bennie Barnes, sec. 22, Blk. C-25, P.S.L. Sur. Loc.

Martin County

J. L. Green et al No. 1 O. B. Holt, C of Labour 20, Lge. 319, Garza Co. Sch. Lds. Drlg. 4,470 ft.

Harris-Anderson Oil Corp. No. 1 Mollie Robinson, sec. 33, Blk. 38, T.&P. Sur. M.I.R.

Menard County

G. A. Clements No. 1 Murchison, sec. 80, B.S.&S. Sur., 8 mi. E of Menard. Spdg.

Nolan County

Marland-Drake Drlg. Co. No. 1 J. H. Withers, sec. 65, Blk. 21, T.&P. Sur. Loc.

Pecos County

Ed Falney No. 1 Trees, sec. 63, Blk. 8, H.&G.N. Sur. R.U.M.

Humble O. & R. Co. No. 1 Belding et al, 9 mi. SW of Ft. Stockton. Fsg. 2,586 ft.

Humble O. & R. Co. No. 1 Butz, sec. 104, Blk. OW. Drlg. 406 ft.

Humble O. & R. Co. No. 1 Pryor, sec. 100, Blk. OW. Drlg. 135 ft.

Messenger & Osborn No. 1 Humble-Young, sec. 49, Blk. 10, H.&G.N. Sur. T.D. 1,807 ft.

S. Thompson No. 1 Elsinore Cattle Co., sec. 54, Blk. D, G.C.&S.F. Sur. Fsg. 6,320 ft.

Thompson & Minshall No. 1 Michaelson, 660 ft. N and W, sec. 24, Blk. 146, T.& St.L. Sur. Drlg. 800 ft.

Wilcox O. & G. Co. No. 1 Serf, sec. 27, Blk. 130, T.&St.L. Sur. Drlg. wtr. well.

Presidio County

L. C. Brite No. 4 fee, C NW¼ sec. 113, Blk. 12, G.H.&S.A. Sur. W.O.C. 3,855 ft. (hole caved).

Reeves County

Barnett Pet. Corp. No. 1 Ely, sec. 38, Blk. 71, P.S.L. Sur., 12 mi. NW of Toyah. S.D. 1,823 ft.

Runnels County

Homer Price No. 1 Beddo, sec. 51, Thompson Casey Sur. S.D. 2,375 ft.

E Z Oil Co. No. 1 B. Fletcher, E. C. Good Sur. T.D. 4,394 ft.; S.O.

Stephenson & Glober No. 1 Fowler, sec. 150, E.T.R.R. Sur., 2 mi. NW of Ballinger. T.D. 1,095 ft.; S.D.

Schleicher County

J. M. Cooper No. 2 B. Page, sec. 40, Blk. L, G.H.&S.A. Sur. T.D. 4,710 ft.; drlg. by csg.

Tex-Tor Oil Corp. No. 1 Judkins & Spencer, C of SW¼ sec. 33, Blk. A, A.&B. Sur. S.D.O. 4,690 ft.

Scurry County

Robinson Drlg. Co. No. 1 Martin, sec. 147, H.&T.C. Sur. Drlg. 3,280 ft.

T. G. Shaw Oil Co. No. 1 First Natl. Bank. T.D. 2,422 ft. (P.D.D.).

Sterling County

Wilcox O. & G. Co. No. 1 Kinnebrew Est., sec. 101, Blk. 2, H.&T.C. Sur. Drlg. 4,000 ft.

Sutton County

Ordovician Oil Co. No. 1 Evans, sec. 1, L. Stubblefield Sur., 32 mi. SE of Sonora. S.D. 3,475 ft.

Terrell County

D. & S. Oil Co. No. 1 Sam Bell. S.D. 345 ft.

Tom Green County

Humble O. & R. Co. No. 1 Lewis & Wardlaw, sec. 5, Blk. 17, H.&T.C. Sur. T.D. 2,669 ft. (fsg.).

Upton County

Rutter et al No. 1 Egolb, sec. 5, J. H. Gibson Sur. Drlg. 2,900 ft.

Ward County

Hoss & Downey No. 1 Ross Avery, sec. 36, Blk. 1, H.&T.C. Sur. Spd. and S.D.

L. F. White et al No. 1 Rector-Monroe, E cor. sec. 3, Blk. 1, W.&N.W. Sur. S.D. 4,710 ft.

Winkler County

Stogner & Pipkin No. 1 Blade, sec. 103, Blk. D, J. H. Gibson Sur. Loc.

Yoakum County

American Liberty Oil Co. No. 1 A. C. Thomas, 2,227 ft. S and 440 ft. W, sec. 864, Blk. D. Drlg. 4,654 ft.

J. W. Murchison et al No. 1 Sawyer, SE¼, sec. 702, Blk. D. S.D. 230 ft.

Denver Prod. & Ref. Co. No. 1-A Whittenburg, sec. 830, Blk. 4. T.D. 5,084 ft. (flwd. 561 B.P.D.).

Skelly and Sun Oil Co. No. 1 Kiser, sec. 640, Blk. D. Drlg. 5,207 ft.

Standard of Texas No. 1 M. B. Sawyer, sec. 576, Blk. D, J. H. Gibson Sur. T.D. 5,403 ft. (tstg.).

Texas Co. No. 1 Walker, sec. 794, Blk. D, El. 3,656 ft.; T.D. 5,180 ft.; P.B. to 5,162 ft.; shot; acid.; swbg. oil and wtr.; P.B. 5,162 ft.; tstg.

P. N. Wiggins et al No. 1 Bartlett, sec. 359, Blk. D. T.D. 5,154 ft. (fsg.).

E. C. TEXAS WILDCATS

Anderson County

Humble O. & R. Co. No. 1-C Southern Pine Lbr. Co. Drlg. L. 8,223 ft.

H. L. Parsons No. 1 H. B. Hemby, 7 mi. NE of Navarro. Drlg. 1,812 ft.

Angelina County

J. C. Bonham No. 1 Cameron Lbr. Co., E. Miller Sur., 3 mi. SE of Zavalla. R.U.

C. E. Parrott No. 1 J. C. Burres, W. Plucker Sur., 2½ mi. W of Huntington. Loc.

Bowie County

King Oil Corp. No. 1 W. W. Ames, 800 ft. S and 1,650 ft. E of J. A. Tolbott Sur., 4½ mi. NW of Texarkana. Drk.

Cherokee County

J. G. Mayo No. 1 Holmes, 330 ft. most northerly NE cor. of 108 acres, S. F. L. Noble Sur. T.D. 4,177 ft.; D.&A.

Merica Oil Co. No. 1 Cherokee Dev. Co., A. J. Acker Sur., 2 mi. E of Maydelle. Drk.

Falls County

McCleod et al No. 1 F. Bolton, J. R. Cockrill Sur., 4 mi. NW Rosebud. Fsg. 1,708 ft.

Freestone County

C. E. Rossiter No. 1 J. P. Fulton in J. P.

Fulton Sur., 2½ mi. E of Donie. S.D. 956 ft.

Gregg County

Humble O. & R. Co. & Gulf O. Corp. No. 1 E. Robertson, M. Mann Sur., 2½ mi. SW of Longview Trinity test. El. 272 ft.; cg. 7,392 ft.

Henderson County

Tide Water Assoc. et al No. 2-C McElreath & Suggett, W. P. Wyche Sur. T.D. 9,320 ft.; P.B. 8,890 ft.; tstg. gas and dist.

Hill County

J. Willis No. 1 W. P. Ball, S. Marshall Sur., 3 mi. NW of Covington. M.I.M.

Hopkins County

Abbott & Ruthland No. 1 Peyton, J. Burkham Sur., 2½ mi. N of Sulphur Bluff. Drlg. 3,620 ft.

Limestone County

C. L. Brown No. 27 N. B. Boyd, R. B. Longbotham Sur., 3 mi. S of Wortham. T.D. 1,402 ft.; oil sd.; rng. csg.

Pure Oil Co. No. 16-T Kendrick, P. Varella Sur., Mexia field. T.D. 8,847 ft.; D.S. stuck.

Stanolind O. & G. Co. No. 1 T. Norris, in Thresher Sur., 5 mi. N of Kosse; 6,500-ft. test elev. 528 ft. drlg. 6,556 ft.

Navarro County

Nowlin et al No. 1 Easterling, J. Mayor Sur., 2 mi. S of Chatfield. T.D. 2,669 ft.; D.&A.

Mrs. Jane Robinson No. 1 Fortson Bros., Eli Smith Sur., 5 mi. NE Corsicana. Drlg. 1,640 ft.

T. Sharpe et al No. 1 E. B. McDowell, T. Jordan Sur., 1¼ mi. S of Bassets. S.D. 2,970 ft.

Rusk County

J. W. Shipman et al No. 1 Citizens Bank, J. J. Y'Barbo Sur., 4 mi. NE of Henderson. S.D. 4,500 ft.

Trinity County

Bilinoski et al No. 1 Trinity State Bnk., B. F. Wright Sur., 2 mi. S of Trinity. Drk.

Upshur County

L. & G. Oil Co. No. 1 H. Williams, Roeder Sur., 2 mi. NW of Gracetown. R.U.

NORTH TEXAS WILDCATS

Archer County

A. P. Lieser No. 1 W. E. Brown, sec. 2,421, T.E.&L. Sur. Drlg. 1,380 ft.

E. C. Norwood et al No. 1 W. P. Ferguson, sec. 4, F. Peterswick Sur. A-343. Drlg. 3,378 ft.

Baylor County

H. J. Baker No. 1 J. R. Martin, sec. 233, T.&N.O. Sur. Drlg. 1,670 ft.

Hampton et al No. 1 A. G. Cochrell, sec. 2,404, T.E.&L. Sur. S.D.O. 1,385 ft.

Clay County

Bridwell Oil Co. No. 1 Edrington Est., sec. 24, B.B.B.&C. Sur. Drlg. 987 ft.

Healdton O. & G. Co. No. 1 Wallace, Belcher Subd. Drlg. 2,305 ft.

Cooke County

W. O. Russell No. 1 Bundy P. Cady. Sur. Testing S.S.O. 2,164-68 ft.

W. O. Russell No. 1 J. W. Sherrill, Wm. Phelps Sur. A-821. Drlg. 1,780 ft.

Whitfield, Pearson & Grimes No. 1 W. G. Dozier. R.U.R.

Denton County

W. C. Curry et al No. 1 G. F. Owens, N. Rudder Sur. A-1060. Drlg. 1,100 ft.

Bruce Lee No. 1 Boyles, S. Ross Sur. A-112. S.D. 1,735 ft.

Scroggins et al No. 1 S. M. Freeman, Bradshaw Sur. A-104. S.D.O. 2,185 ft.

Wells-Dodson-Pearson No. 1 Hughes, B.B.B.&C. Sur. A-1252. S.D.O. 2,200 ft.

Foard County

O. P. Burnham No. 1 T. L. Ward, sec. 21, H.&T.C. Sur. S.D.O. 2,361 ft.

Texas Co. No. 14 Johnson, sec. 37, S.P. R.R. Sur., Blk. L. Drlg. 3,100 ft.

Grayson County

Denver P. & R. No. 1 Cannon, A. Berry Sur. A-130. Recement plug.

Pearson Tubing Co. No. 1 J. H. Thompson, W. A. Warner Sur. A-1350. Drlg. 2,550 ft.

Jack County

J. B. Burris No. 1 W. J. Eatherly, John Heimstutler Sur A-1,267. Drlg. 2,300 ft.

Hamilton Pet. Co. No. 1 Johnson Brothers, Spottswood Sur. A-531. Drlg. 2,705 ft.

Hammon, W. H., No. 2 George E. Evett, sec. 2, W.C.R.R. Sur. Drlg. 2,108 ft.

Hanlon-Buchanan, Inc., No. 1 Ed M. Myers, N. F. Rudmose A-1803. Drlg. 2,410 ft.

Hanlon-Buchanan, Inc., No. 1-A E. R. and W. Worthington, S.A.&M.G. Sur. A-589. 6⅝-in. 2,350 ft.; O.S. 2,360-70 ft.; bailing. 6 bbls. per hour; P.O.P.

L. C. Harrison No. 1 L. S. Wright et al, Z. S. Brooks Sur. A-64. Drlg. 1,117 ft.

Nelson Oil Synd. No. 1 J. E. Henderson A, T. J. Walden Sur. A-914. Spudding.

O. J. Perrin No. 1 J. S. Rhodes, J. W. Coates Sur. A-1,240. Loc.

Taubert & McKee No. 1 R. H. Eatherly, J. H. Henderson Sur. A-1,749. Spud. and S.D.

Van Eman & Richards No. 1 Whitsell, Wm. McElroy Sur. A-559. S.D.O. 922 ft.

Montague County

J. W. Sorrell et al No. 1 J. E. Walthall, Sam H. Smith Sur. A-662. Drlg. 2,411 ft.

Wichita County

Burk Royalty Co. No. 1 W. L. Hodges, Lot 8, H.T.&B. Sur. A-139. Drlg. 3,040 ft.

Consolidated Oil Co. No. 1 W. P. Ferguson, William Spillers Sur. A-257. Drlg. 1,800 ft.

Grace & Woods No. 1 W. L. Hodges, H. B. Balch Sur. A-26. 6⅝-in. 3,720 ft.; S.L.O.S. 3,834-3,909 ft.; testing est. 750 bbls.

W. E. Hammon No. 1 Mrs. H. Lalk, Blk. 284, W.C.S. Sur. Drlg. 905 ft.

King Oil Co. No. 1 T. F. Mitchell, P. Castleman Sur. A-36. 6⅝-in. 3,640 ft.; B.O.S. and lime 3,700-3,825 ft.; flowing.

King Oil Co. No. 1 J. L. and T. J. Waggoner, Blk. 8, M. A. Willis Sur. Drlg. 2,165 ft.

LeBus No. 1 J. F. Miller, W. R. Eaves Sur. A-447. Tstg. after 30-qt. shot.

Melat & Graham No. 1 J. and J. Waggoner, W. R. Eaves Sur. A-753. Drlg. 4,040 ft.; 3,000 ft. oil in hole.

Patterson et al No. 1 B. C. Ellis, J. Waldschmidt Sur. A-792. S.D.O. 1,300 ft.

Felix Payne No. 1 P. R. Pace, R. J. Scott Sur. A-253. Spud. & S.D.

Staley Oil Co. No. 1 First National Co., Blk. 44, K.W.V.F.L. Sur. 6⅝-in. 3,740 ft.; W.O.C.

E. J. Stump No. 1 M. P. Bishop, L. Netherley Sur. A-240. Drlg. 3,500 ft.

Clyde Texan Oil Fields Co. No. 1 A. W. Burnside, John M. Sharp Sur. A-262. Shot S.L. 3,935-51 ft.; tstg.; W.O. R.R. Com. test.

Wilbarger County

Barry & Hayes No. 1 McGill, sec. 3, Blk. 9, H.&T.C. Sur. S.D. 3,030 ft.

W. Little No. 1 A. P. Morris, sec. 3, H.T. &C. Sur., Blk. 14. C.O. 1,305 ft.

Phillips Pet. Co. No. 1 W. T. Waggoner "Barger," sec. 11, H.&T.C. Sur., Blk. 14. Drlg. 1,930 ft.

W. W. Woolsey et al No. 1 Waggoner A, sec. 3, S.P.R.R. Sur. A-535. Drlg. 1,400 ft.

Wise County

Latex Oil Co. No. 1 C. R. Smith, J. Couch Sur. A-104. C.O. bridge; tstg.

Young County

Anzac Oil Corp. No. 1 E. S. Graham, A. Hines Sur. A-135. Drlg. 2,800 ft.

Beavers, C. E., et al No. 1 Cooper, sec. 81, T.E.&L. Sur. 6⅝-in. 1,185 ft.; O.S. 1,185-87 ft.; flowing.

C. B. Christie No. 1 S. Dozier, I. L. Hill Sur. A-126. 5⅛-in. 3,780 ft.; W.O.C.

Collier & Conner No. 1 H. M. Ford, W. T. Carter Sur. A-62. Drlg. 2,620 ft.

N. B. Crenshaw No. 1 J. C. Dwight, sec. 1,444, T.E.&L. Sur. Material on ground.

L. A. Long No. 1 F. A. Burnett, E. G. Rector Sur. No. A-239. W.O.C.

RANGER (CENTRAL TEXAS) DISTRICT

Brown County

C. R. Cox, Tr., No. 1 Jan Lee, sec. 11, B.B.B.&C. Sur., NE cor. county. S.D. 240 ft.

H. P. Evans No. 1 J. T. Hall, 2 mi. N of Bangs, 220 ft. from N line and 11,008 ft. from W line of SW¼ sec. 25, H.T. &B.R.R. Sur. S.D. 400 ft.

Guyle Greynolds No. 4 A. Leatherwood, 5 mi. E of Cross Cut, 650 ft. from N line and 200 ft. from W line of E½ Blk. 11, Juan Dalgado Sur. Drlg. 1,000 ft.

R. B. Irving et al No. 1 T. C. Giddings, 390 ft. from S line and 3,382 ft. from W line of J. J. Cleiland Sur., 1 mi. E Thrifty. Correct owner was Irving & Prairie Oil Co. Loc. 1,500-ft. test.

S. B. Roberts No. 1 Angell, 9 mi. SE Cross Cut, B. H. Garvin Sur. Drlg. 1,150 ft.

Ungren & Frazier and Paul Pitzer No. 1 Cox & McInnis, sec. 88, I. S. Tabor Sur. (map shows H.T.&B. Sur.). Drlg. 1,450 ft.

Callahan County

R. F. Gilman et al No. 1 W. A. Young, 5 mi. NW Clyde, sec. 37, B.B.B.&C. Sur. S.D. 475 ft.

Hal Hughes No. 1 Poindexter, sec. 350, Geo. Hancock Sur., 2 mi. NE of Oplin. T.D. 3,175 ft.; S.D.

J. C. Jackson et al No. 1 Thompson, 2 mi. S. Eula, sec. 30, B.B.B.&C. Sur. S.D. 1,500 ft.

Phillips Pet. Co. No. 1 Cozart, 1 mi. NW Scranton, M. Cherry Sur. Drlg. 2,200 ft.

R. F. St. John No. 1 A. E. Dyer, 4 mi. NW of Clyde, 1,385 ft. from E line and 1,323 ft. from S line of sec. 40, B.B.B. &C. Sur. S.D. 600 ft.

Walker & Webb No. 1 Ross, 1 mi. NE Clyde, sec. 81, B.B.B.&C. Sur. Drlg. 1,500 ft.

Woodley Pet. Co. No. 1 Flores-Deep, 5 mi. SE of Baird, sec. 149, B.B.B.&C. Sur. Drlg. 1,700 ft.

Coleman County

J. F. Brock No. 1 J. H. Livingston, SE cor. SW¼ county, J. D. Waters Sur. No. 208. Drlg. 425 ft.

Dixie O.&G. Co. No. 1 Reaves, 6 mi. NW of Bangs, J. M. Rhine Sur. No. 629. Drlg. 1,250 ft.

McDonald & Campbell & Cunningham No. 1 R. M. Lowe, SE of NE¼ county, 1,200 ft. from N line and 450 ft. from W line of J. C. Hunter Sur. M.I.M.; 1,350-ft. test.

Comanche County

N. D. Gallagher et al No. 1 Mrs. B. I. Terry, Desdemona pool, N. H. Kuyken dall Sur. S.D. 4,450 ft.

Dobbs Oil Co. No. 1 Hodges, sec. 11, Blk. 2, H.&T.C. Sur. Drlg. 1,900 ft.

Eastland County

G. D. Chastain et al No. 1 Weddington, 4 mi. N. Cisco, sec. 496, S.P.R.R. Sur. Drlg. 3,395 ft.

Hickok Prod. & Dev. Co. No. 1 J. E. Donovan, 5 mi. NW of Cisco, 660 ft. from N and E lines of NW¼ sec. 489, S.P. R.R. Sur. Loc.

J. D. Kittrell No. 1 Reynolds, 5 mi. E of Carbon, sec. 23, H.&T.C. Sur., Blk. 1, S.D. 950 ft.

Lone Star Gas Co. No. 1 M. Thomas, 5 mi. NW of Cisco, 668 ft. from N line and 660 ft. from E line of SE¼ sec. 478, S.P.R.R. Sur. R.U.

Monark O. & G. Co. No. 1 Downtain, sec. 14 H.&T.C. Sur. Blk. 4, 3 mi. N Eastland. S.D. 2,140 ft.

J. R. Nichols et al No. 1 R. W. Murray Hrs., 3½ mi. SE of Carbon, 330 ft. from N and W lines of SW¼ sec. 4, H.&T.C. Sur., Blk. 2. Loc. 2,100 ft.

Erath County

Arnold Oil Co. No. 1 McMillan, 2 mi. SE of Desdemona, T. H. Dixon Sur., Abst. 1,103. Drlg. 3,050 ft.

J. Hickey et al No. 1 Smith, 5 mi. SE Desdemona, J. B. Smith Sur. Drlg. 3,220 ft.

Jones County

E. P. Campbell et al No. 1 L. H. Lee, 5 mi. S Hawley, sec. 16, T.&P. Sur., Blk. 16. Drlg. 1,965 ft.

Fain & McGaha Oil Corp. No. 1 Mrs. L. E. Williams, 3½ mi. SW Nugent, 220 ft. from S & W lines of NE¼ of Sec. 37, T.&P. Sur., Blk. 15. Loc.

Felmont & Adams No. 1 Woodson, 1½ mi. SE Avoca, sec. 200, B.B.B.&C. Sur. S.D. 2,550 ft.

Grisham & Hunter No. 1 E. D. Appling, NW¼ county, 1,208 ft. from S line and 1,450 ft. from W line of SW¼ sec. 32, B.B.B.&C. Sur. Drlg. 1,550 ft.

Mack Hayes and Montour Oil Co. No. 1 Chittenden, 7 mi. SE Hamlin, Subd. 18, McMullen & McGloin Sur. 337. Drlg. 1,765 ft.

T. D. Humphrey No. 1 Fielder, 2½ mi. E Anson, sec. 34, O.A.L. Sur. S.D. 550 ft.

Iron Mountain and Humble No. 2 Jones & Stasney, 3 mi. NE of Avoca, sec. 196, B.B.B.&C. Sur. L. 3,225-40 ft.; tstg.

A. P. Kouri No. 1 J. C. Fielder et al, 5 mi. NW Nugent, 220 ft. from S and E lines of 80-ac. lse., sec. 2, T.&N.O. Sur., Blk. 2. Drlg. 1,470 ft.

Bells Wells Oil Co. No. 1 M. Caton. S.D.

Oil States Expl. Co. No. 1 Olson, 4 mi. N Avoca, sec. 182, B.B.B.&C. Sur. S.D. 2,265 ft.

Medders & Heydrick No. 1 Ann Shaheen. 2 mi. SW of Nugent, 220 ft. from S and E lines of most easterly SE cor. of sec. 50, T.&P. Sur., Blk. 15. Drlg. 1,600 ft.

Owen M. Murray et al No. 1 Rial, 2 mi. E Avoca, sec. 198, B.B.B.&C. Sur. Drlg. 3,160 ft.

Pet. Producers No. 1 J. S. Millsap et al, 3½ mi. SW Nugent, 220 ft. from S and E lines of NW¼ sec. 37, T.&P. Sur., Blk. 15. Drlg. 1,800 ft.

Riddle et al No. 1 J. D. Freeman, 8 mi. SW Anson, sec. 6, T.&P. Sur., Blk. 17. S.D.

Roeser & Pendleton No. 1 fee, 2 mi. NW of Nugent, 2,800 ft. from N line and 3,240 ft. from W line of sec. 4, T.&P. Sur., Blk. 15. Drlg. 1,450 ft.

Shaheen Oil Co. et al No. 1 Jenson, 2 mi. E of Avoca, sec. 198, B.B.B.&C. Sur. S.D.

Dale Smith & Bert Fields No. 1 C. L. Carter, 3 mi. SW of Nugent, 220 ft. from N and W lines of SE¼ of SE¼ sec. 37, T.&P. Sur., Blk. 15. Drlg. 450 ft.

Stanton & Miller No. 1 Gaither, 4½ mi. N of Anson, sec. 38, B.B.B.&C. Sur. S.D.

Ungren & Frazier No. 1 Manley Heirs, SE cor. of county, 660 ft. from N and W lines of sec. 44, T.&P. Sur., Blk. 14. Drlg. 1,675 ft.

C. E. Waite, Trust, No. 1 Ray, 3½ mi. SE of Stamford, sec. 7, D.&D.A. Sur. Drlg. 2,650 ft.

Mills County

Balyaet & Boyd No. 1 Westbrook, 7 mi. W of Goldthwaite, 4,950 ft. from S line and 4,290 ft. from W line of Caldwell Co. Sch. Ld. Sur. S.D.

Nolan County

Marland Drake No. 1 E. H. Woods, 6 mi. SW of Sweetwater, 1,320 ft. from S and W lines of sec. 65, T.&P. Sur., Blk. 21. Loc.

Palo Pinto County

Brazos River Gas Co. No. 5 M. B. Costello B, 1½ mi. N Pickwick, 1,397 ft. from N line and 150 ft. from W line of survey (W line being river bank), 660 ft. SW No. 4, R. R. Williams Sur. S.D. 400 ft.

W. H. Clement No. 1 Federal Life Ins. Co., 2 mi. W Mineral Wells, sec. 51, T.&P. Sur., Blk. A (E of B), S.D. for pipe 400 ft.

Bill Cole et al No. 1 J. W. Harris Est., NW cor. county, De La Garza Sur. S.D.

W. K. Gordon et al No. 1 Johnson, 5 mi. N Gordon, John Bird Sur. Drlg. 2,100 ft.

Henry Hobbs et al No. 1 Bessie Holt, 4 mi. S. Graford, sec. 1,783, T.E.&L. Sur. S.D. 200 ft.

King Oil Co. No. 1 S. F. Lee, 4 mi. NW Graford, 933 ft. from N and W lines of sec. 1744, T.E.&L. Sur. S.D. 750 ft.

Ernest Lloyd et al No. 1 McClure, 3 mi. NE Graford, sec. 2,004, T.E.&L. Sur. S.D. 1,200 for csg.

Shackelford County

J. F. Baker No. 1 Merrick Davis, NE cor. of S½ of county, 330 ft. from N and W lines of sec. 21, T.&P. Sur., Blk. 13. S.D. 1,890 ft.

Joe DeGrazier No. 1 Harbough, E cen. part of county, sec. 1,563, T.E.&L. Sur. 4,500-ft. test. S.D.

Forest Dev. Corp. No. 1 T. G. Hindrick, NW cor. of county, 2,600 ft. from N line and 4,300 ft. from W line of sec. 1, A.B.&M. Sur. Drlg. 351 ft.

T. D. Humphrey No. 1 Alston, NE cor. county, sec. 16, H.&T.C. Sur., Blk. 3. Drlg. 1,100 ft.

C. J. Kleiner et al No. 1 Morris, 2 mi. NE Bluff Creek pool, sec. 187, E.T.R.R. Sur. S.D. 1,650 ft.

Mesa Verde Oil Co. No. 1 Hennessey, 7 mi. E of SW cor. county, sec. 87, T.&P. Sur., Blk. 13. Drlg. 1,600 ft.

Owens-Snebold Oil Corp. No. 1 Haterius, sec. 163, B.B.B.&C. Sur. L. 3,190-91 ft.; S.O.; cmtg.

Stephens County

Danciger Oil Ref. Co. No. 1 Mrs. Aileen Copeland, 8 mi. SE Ivan, 1,196 ft from E line and 350 ft. from S line of sec. 1, M.E.P.&P. Sur. Loc.

Graham, Hafner, Lane & Inman No. 1 J. N. Yocum, 5 mi. SE of Frankell, 250 ft. from N and E lines of farm or approx. 2,525 ft. from E line and 1,400 ft. from S line of John R. Carter Sur. Loc.

I. C. Little No. 1 R. M. Rogers, NE¼ of county, 150 ft. from E line and 1,980 ft. from S line of sec. 28, T.&P. Sur., Blk. 5. Loc.

G. Willard Rich No. 1 M. M. Andrews, SW cor. county, 450 ft. from S line and 300 ft. from W line of N½ sec. 39, T. &P. Sur., Blk. 7. Loc.; 4,500-ft. test.

Tarrant County

E. E. Hoffpauir et al No. 2 W. H. Davis, 2 mi. S Arlington, H. Blackwell Sur. S.D.O. 2,140 ft.

Taylor County

Bert Fields et al No. 1 Sears, sec. 223, Blk. 64, H.&T.C. Sur. Drlg. 1,000 ft.

Dale H. Dorn No. 1 Hopkins, 1 mi. NW View, Subd. 20, sec. 120, Guadalupe Co. Sch. Ld. Sur. Drlg. 3,150 ft.

A. Findley No. 1 Bowles Est., NE cor. county, sec. 26, B.A.L. Sur. S.D.

Wichita Prod. Co. No. 1 E. Lincicum, NE cor. of county, 990 ft. from N line and 1,195 ft. from E line of NW¼ sec. 21, B.A.L. Sur. R.U.

Throckmorton County

Morris & Spoonts No. 1 Alden Bros., NW cor county, 1,350 ft. from E line and 5,210 ft. from S line of Raymond Sanches Sur. A-248. Loc.

Henry Zweifel No. 1 J. H. Lee, 4 mi. NE of Woodson, 930 ft. from E line and 2,011 ft. from S line of J. A. George Sur. Loc.

Wise County

Latex Oil Co. No. 1 Smith, 3 mi. E of Bridgeport, Jas. Couch Sur. T.D. 4,075 ft.; C.O. bridge; testing.

Drops Dealer Contracts

CHICAGO, Ill.—Standard Oil Co. of Indiana effective November 30, 1937, will discontinue contracts with dealers for Stanolind stove and lighting naphtha, which contracts provided for a discount off the tank-wagon price, and effective December 1, 1937, will post a price to dealers on this product which will be 1½ cents per gallon below the normal tank-wagon price.

CENTRAL TEXAS COMPLETIONS

Jones County

W. L. Herring and others No. 1 J. W. Grogan, total depth 2,708 feet, dry and abandoned. Ungren & Frazier No. 5 Dorsey A, 1,972-77 feet, total depth, 150 bbls. per day.

Shackelford County

Joan Oil Co. No. 5 Morris, 1,588-95 feet, total depth 1,605 feet, 3 bbls. per day.

Stonewall County

General Crude Oil Co. No. 1 Harrison, total depth 3,680 feet, dry and abandoned.

James Carriel recently arrived at Taft, in California's San Joaquin Valley, to become junior geologist for the Chanslor-Canfield Midway Oil Co.

H. R. Gruber Named Chairman of Expo "Old Timers" Committee

The appointment of H. R. Gruber, vice president and sales manager of the Union Wire Rope Corp., as chairman of the International Petroleum Exposition's "Old Timers" committee is announced by President

H. R. GRUBER

W. G. Skelly. The committee will have charge of the entertainment of "old timers" in the oil industry who visit the next exposition in Tulsa May 14 to 21. The selection of the "Grand Old Man of the Industry" and the "Grand Old Man of Tulsa," awards given since the 1927 exposition, will also be handled by the committee.

General Manager W. B. Way said the committee will give consideration to erection of a suitable memorial to the "old timers" and to its unveiling during the next exposition. The replica of the old Drake well will again be used as a club house for the "old timers" where experiences of the old days may be exchanged.

New York-Pennsylvania Fields

COUDERSPORT, Pa., Nov. 29.—One well was completed, the fourteenth successful one in the Woodhull field, during the past week in the New York-Pennsylvania Oriskany sand gas fields.

Hanley & Bird completed their test on the J. Lobeck farm, Woodhull Township, Steuben County, New York, with an initial open flow of 22,600,000 feet. This well topped the Oriskany sand at 4,110 feet and was completed at a total depth of 4,122 feet. It had an initial rock pressure of 1,630 pounds.

Outstanding development of interest in the Pennsylvania side of the two-state field was the installation of a rotary rig on the Potter Development Co. test on the Crawford estate farm, Keating Township, Potter County. A succession of blowouts and other trouble have delayed completion of this wildcat which will test the Medina in that district for the first time.

This operation does not mark the first time that rotary drilling has been used in the East but it is exceptional enough to warrant more than passing mention. The well was drilled to its present depth of 6,062 feet by cable tools.

Pennsylvania Operations

Potter Development Co. is cleaning out at 5,674 feet in its other Potter County wildcat on the Haupt farm in West Branch Township. P. P. & L. Co. is running casing in its test on the G. M. Whitman farm, Harrison Township, drilled to 5,040 feet.

Belmont Quadrangle Drilling Co. test on Lot 487, Pleasant Township, Warren County, reached the Tully limestone since the last report. It is drilling at 3,970 feet. The Tully was topped at 3,958 feet.

New York State Natural Gas Co. is drilling at 3,095 feet on the A. D. Marble farm and is shut down at 2,930 feet on the A. Schofield No. 2 farm, both in Harrison Township. Ward Wasson is drilling at 3,830 feet on the R. B. Hall farm in Genesee Township while G. L. Cabot, Inc., remains inactive on location on the Orwin & Carlson farm, Wharton County.

New York Operations

Belmont Quadrangle Drilling Co. test on the L. S. Johnson farm is drilling at 4,033 feet after topping the Oriskany sand at 4,029 feet and will in all probability be the fifteenth completion for the Woodhull Township field of Steuben County. This company also has the rig up on the John Allen farm (elevation 1,811 feet). Other Woodhull operations are:

Southwestern Development Co., in addition to a location on the J. Seeley farm, is drilling at 1,717 feet on the E. G. Husted farm, and at 1,052 feet on the Earl Brown farm.

Hanley & Bird are drilling at 3,864 feet on the E. H. Ackerman No. 1 farm after passing through the Tully at 3,201-54 feet.

J. Becker is drilling at 3,850 feet on the Fredy Sly farm.

Cunningham Natural Gas Co. is drilling at 3,982 feet on the J. J. Johnson farm.

Kansas Fields

(Continued from Page 82)

was bottomed at 2,820 feet, made potential of 158 bbls. of oil and was completed.

Lloyd, Frost & Study and others No. 1-K Elder, NW NW NE section 4-32-3e, south side of the Weathered area, had Kansas City lime at 2,480 feet, total depth 2,531 feet, was shot and pumped 15 bbls. of oil daily.

Sinclair Prairie Oil Co. No. 1 Turner, NE SE NW section 30-32-6, was a location.

Sumner County

Cities Service Oil Co. No. 1 McCoy, SE SE SW section 11-35-2e, Sumner County, had Siliceous lime at 3,892 feet, water intruded at 3,921-25 feet, total depth. and it was abandoned.

Stevens County

Panhandle Eastern Pipe Line Co. No. 1 McClure, C SW section 34-31-38w, Hugoton field, Stevens County, had gas sand at 2,476 feet, total depth 2,776 feet, was acidized and produced 10,500,000 feet of gas, completed.

Benedum-Trees Oil Co. No. 1 Hamilton, C SE section 10-35-38w, was bottomed at 2,835 feet and produced 5,300,000 feet of gas, completed.

Same operators No. 1 Morris, C NW section 33-34-38w, was a location.

Grant County

R. K. Wilson No. 1 Whitson, C NW section 17-28-37w, Grant County, produced an estimated 6,750,000 feet of gas and was completed at 2,685 feet, total depth.

Panhandle Eastern Pipe Line Co. No. 1 Howell, C NE section 16-29-36w, was an abandoned location.

IMPORTANT BOOKS for the Oil Man

"POLYMERIZATION"

Recognizing polymerization as the newest commercialized product of pure research chemistry, the American Chemical Society asked Robert E. Burk, professor of chemistry at Western Reserve University, Howard E. Thompson, Archie J. Weith and Ira Williams, research chemists, to prepare the 320-page book entitled "Polymerization" now available. The authors discuss the relationship between the molecular structure of the base material and the rate of polymerization, the use of catalysts to effect and control the reactions, and the structure of the polymers. They discuss in particular the application of polymerization to the oil refining industry. The manufacture of polymerized motor fuels is treated at greatest length but the manufacture of various resins, lubricants and asphalts is described in full. The characteristics of the polymer products are compared with those of general manufacture.

"Polymerization" may be purchased through the Book Department of The Oil and Gas Journal at the regular established price of $7.50 express prepaid (postage additional outside the United States), and a copy will be sent promptly upon receipt of check or money order. Where payment or purchase order does not accompany the order the book is shipped express c.o.d. to avoid delay.

Rocky Mountain Runs

Production estimates for week ended November 27:

WYOMING

Salt Creek	16,445
Big Muddy	1,320
Badger Basin	250
Black Mountain	190
Dallas Derby	560
Dutton Creek	60
Elk Basin	190
Frannie	1,800
Garland	2,750
Grass Creek	210
Hamilton dome	1,350
Hidden dome	320
Hudson	300
LaBarge	1,040
Lance Creek	12,800
Lost Soldier	1,360
Medicine Bow	5,190
Midway	60
Oregon Basin	3,970
Osage	760
Pilot Butte	20
Quealy dome	720
Rock River	3,020
South Casper	510
Poison Spider	330
Teapot	20
Wertz	330
Waugh dome	40
Total Wyoming	55,915

MONTANA

Border	100
Cat Creek	570
Cut Bank	8,120
Kevin-Sunburst	4,990
Pondera	1,200
Total Montana	14,980

COLORADO

Florence	120
Fort Collins and Wellington	210
Iles dome	2,560
Moffat	420
Orchard	20
Rangely	80
Tow Creek	170
Price	620
Total Colorado	4,200

NEW MEXICO

Cooper	5,350
Eaves	1,040
Eunice	27,630
Hardy	1,430
Hobbs	16,280
Jal	1,220
Langlie	2,640
Lynch	670
Lynn	420
Monument	29,400
Mattix	2,230
North Lynch	60
Penrose	4,260
Rhoades	130
Skelly	1,620
South Eunice	2,290
Vacuum	80
Artesia-Maljamar	6,810
Getty	200
Hogback	200
Rattlesnake	770
Table Mesa	80
Total New Mexico	104,810
Total Rocky Mountain region	179,905

Gulf Coast Fields

(Continued from Page 70)

field since it showed 20 stands of 38-gravity oil along with some salt water when tested last week at 8,870-75 feet. A cement squeeze job was made in an attempt to eliminate the water. This is the third well drilled and is located southwest of Stanolind Oil & Gas Co. No. 1 Calcasieu National Bank, the discovery well.

Watching Calcasieu Test

In Calcasieu Parish, much interest is centered on Republic Production Co. No. 1 Sabine Tram, section 25-18s-14w. The well is bottomed at 9,620 feet which is one of the deepest holes in that area. The drill stem became stuck and while pulling, the drilling line parted which will delay operations for several days. It is reported but not confirmed that the well attempted to blow out. It is being drilled in search of Cook Mountain production, recently opened in Evangeline Parish by the Continental Oil Co.

MARKET RECORD, ACTIVE OIL STOCKS

Compiled by Carl H. Pforzheimer & Co., 25 Broad Street, New York City, Member New York Stock Exchange and New York Curb Exchange

New York Stock Exchange

1937 High	1937 Low	Week ending Nov. 27 Sales	High	Low	Close	Stocks—	Total shares outstanding	Par value	Latest dividend	Payable or last paid	Dividends paid in 1936	1936 High	1936 Low	1935 High	1935 Low
114⅞	51½	5,100	55¾	51½	55⅛	Amerada Corp.	788,675	N.P.	50cQ	10-30-37	$2.00	125½	75	80	48⅛
37	18	9,300	21¼	19¾	21¼	Atlantic Refining	2,664,000	$25	25cQ	12-15-37	1.25	35⅛	26⅝	28	20⅛
43⅜	10⅛	5,900	17½	14⅞	17¼	Barber Co.	387,149	$10	75c	12-16-37	.50	38½	21	22½	11⅝
35¼	10	14,600	14	12⅛	14	Barnsdall Oil Co.	2,247,974	$5	25cQ	11-1-37	.80	28¼	14⅛	14¾	5⅞
20⅞	4⅝	75,900	10⅝	9	10⅝	Columbia Gas & Elec.	11,610,036	N.P.	20c	5-15-37	.40	23⅜	14	15¾	3⅜
17⅞	7	36,300	9¾	8¾	9¾	Consolidated Oil Corp.	13,919,417	N.P.	20cQ	11-15-37	.80	17¼	11½	12¼	6½
49	24	24,800	27⅝	24½	27⅝	Continental Oil of Delaware	4,682,615	$5	25cQ	12-20-37	1.50	44⅞	28⅛	35	15⅛
17⅝	4¾	11,800	7⅝	6½	7⅝	Houston Oil (new)	1,098,618	$25		10-17-30	....	13⅞	6⅜	7	1½
35⅜	14	6,900	19⅞	18	19⅝	Mid-Continent Petroleum	1,855,912	$10	$1	21-1-37	1.15	30⅞	17¼	20½	9½
34	15⅜	1,700	16¼	15⅜	16¼	Mission Corporation	1,399,345	N.P.	$1	6-15-37	.45	29⅞	16⅜	17⅜	10⅜
26¼	19¼	13,700	22⅜	19¼	22½	National Supply	382,591	$25	$2 pf.‡	12-22-37	....	75½	19⅞	20⅞	9
22⅞	9	21,300	12⅞	11	12⅝	Ohio Oil Co.	6,563,377	N.P.	50cSA	12-15-37	.60	18	12⅛	14¼	9¼
29¾	12⅛	1,900	13½	12½	13¼	Pacific Western Oil	1,000,000	N.P.	65c	12-18-36	.65	23½	11¾	14	6¾
4½	1	700	1⅜	1¼	1¼	Panhandle P. & R.	198,770	N.P.	....	.....	....	4¼	1⅜	1⅞	⅛
64	30⅛	20,400	41	36⅝	40¾	Phillips Petroleum	4,449,052	N.P.	75cQ†	12-1-37	2.50	52⅜	38⅛	40	13¾
29⅞	13	6,000	20	16¼	19⅞	Plymouth Oil Co.	1,050,000	$5	35cQ	9-30-37	.90	27¾	11⅞	13	6⅛
24⅜	8¾	50,300	12⅜	10¼	12¼	Pure Oil Co.	3,281,120	N.P.	....	9-1-30	.	24⅞	16	17	5⅞
54⅛	16	9,500	21⅞	19¼	21⅞	Seaboard Oil of Delaware	1,224,283	N.P.	25cQ	9-15-37	1.00	44	30½	36⅞	20¾
34¾	14⅞	8,900	16⅞	14⅞	16¾	Shell Union Oil	13,070,625	N.P.	50c	7-15-37	.25	28¼	14¾	16½	5⅛
105⅜	91	400	92⅛	91	92	Shell Union Oil 5½% pfd.	343,500	$100	$1.37½Q	10-1-37	28.87½	127½	102	111	63⅛
4¼	2½	500	2¾	2¾	2¾	Simms Petroleum	461,698	$10	75c liq.	11-3-37	2.25 liq.	6¾	3½	18¾	4¾
60⅝	26⅞	3,600	29	26⅞	28	Skelly Oil	1,006,348	$15	50c	9-30-37	. . .	47⅜	19½	20½	6⅛
23¼	13	52,400	15½	13¾	15½	Socony-Vacuum	31,151,071	$15	30c	12-15-37	.70	17½	12½	15¾	10⅝
50	28	18,300	30⅞	28⅞	30⅞	Standard Oil of California	13,014,754	N.P.	80cQ†	12-15-37	1.20	47⅝	35	41⅛	27¾
50	26½	13,200	32⅜	31	32½	Standard Oil (Indiana)	15,196,241	$25	$1Q†	12-15-37	2.40	48½	32¾	33⅜	23
50	30⅝	No sales	..	..	..	Standard Oil of Kansas	134,841	$10	$1	12-26-36	1.00	31	25	32	20
76	42	46,800	45½	42	45	Standard Oil of New Jersey	25,856,081	$25	$1.25SA†	12-15-37	2.00	70⅜	51⅛	52⅜	35⅝
77½	49	1,600	56	49	49½	Sun Oil	2,156,825	N.P.	25cQ	9-15-37	$1 & 6% Stk.	91	70	77	60⅓
65⅛	34⅜	47,100	39¼	35⅛	39¼	Texas Corp.	10,896,858	$25	50cQ	10-1-37	1.50	55¼	28⅞	30¼	16⅓
9⅝	2	7,600	4	3½	4	Texas Gulf Producing Co.	888,132	N.P.	10c	12-23-37	.05	8⅞	4⅜	4¾	2⅓
16⅝	5⅜	7,700	8¼	7⅜	8⅛	Texas Pacific Coal & Oil	888,237	$10	10c	12-1-37	.25	15¼	7½	9¼	3¼
21⅝	13⅛	11,700	14⅞	13¾	14¾	Tide Water Associated	6,288,512	N.P.	35cQ†	9-1-37	.70	21¾	14¾	15⅞	7⅝
28¼	17½	8,500	21	18⅞	20¾	Union Oil of California	4,386,070	$25	55cQ†	11-10-37	1.00	28½	20¾	24	14¾
31½	22	2,100	23	22	22	Union Tank Car Co.	1,200,000	N.P.	40cQ	12-1-37	1.20	31⅝	22⅝	26½	20⅞
6¼	1¾	700	2½	2⅛	2½	Wilcox Oil & Gas	424,839	$5	....	5-10-28		5¼	2¾	3⅛	1

*Ex-dividend. †Includes extras. ‡One-tenth share $2 preferred stock.

New York Curb Exchange

1937 High	1937 Low	Week ending Nov. 27 Sales	High	Low	Close	Stocks—	Total shares outstanding	Par value	Latest dividend	Payable or last paid	Dividends paid in 1936	1936 High	1936 Low	1935 High	1935 Low
21⅜	7	1,400	11	9¾	11	Bridgeport Machine Co.	260,000	N.P.	25c	9-30-37	$1.00	21	13¼	14⅛	3¾
51½	39½	150	40	39	39	Buckeye Pipe Line Co.	200,000	$50	75cQ	12-15-37	3.25	50	39¾	42½	30½
2¾	¾	1,200	1⅛	1	1⅛	Carib Syndicate	799,020	25c	....	.....	....	4⅞	1⅞	4¼	1⅝
123	95½	50	99¾	99¾	99¾	Chesebrough Mfg. Co.	120,000	$25	$1.50Q†	9-30-37	7.00	124¾	105	157	115
5⅜	1½	29,500	2¼	2	2¼	Cities Service	37,804,394	N.P.	....	6-1-32	....	7⅜	3	3¼	⅝
5½	1½	2,800	2¼	1¾	2⅛	Cosden Petroleum	399,687	$1	....	.....	....	4½	1½	1½	¼
38¾	20¼	9,900	24⅜	21	24⅜	Creole Petroleum	6,974,356	$5	50cSA†	12-15-37	.50	39	19⅞	23¾	10
18⅝	6½	1,200	7½	6⅞	7	Darby Petroleum	351,390	$5	25cSA	1-15-38	.50	18⅛	9	8⅞	4
8⅜	2½	1,500	4	3½	4	Derby Oil & Refining	263,162	N.P.	....	.....	....	6¾	1⅞	2	⅝
47½	24½	150	30	30	30	Eureka Pipe Line	50,000	$50	$1Q	11-1-37	4.00	47½	38½	38	33¼
63½	33	6,200	38¼	35	38¼	Gulf Oil Corp.	9,076,202	$25	25cQ	12-1-37	1.50, 100% Stk.	59	36	74¾	50¼
87	54⅞	5,800	58	54⅞	58	Humble Oil & Refining	8,923,935	N.P.	62½cQ	12-27-37	1.50	80	57	64	44
24¼	14½	6,800	18⅛	17¾	18	Imperial Oil of Canada	26,919,871	N.P.	62½cSA†‡	12-1-37	1.25	24½	19¾	22½	15⅝
15	5⅞	400	7¾	7½	7¾	Indiana Pipe Line	300,000	$10	50cSA	11-15-37	.80	9¾	5½	6⅛	3⅝
39½	23½	6,500	30⅜	28½	30⅜	International Petroleum	14,247,088	N.P.	$1.25†‡	12-1-37	2.50	39⅝	32⅝	39⅜	28
15¼	7	5,700	8¼	7⅛	8¼	Louisiana Land & Exp.	3,000,000	N.P.	20cQ†	12-15-37	.50	15⅜	9⅞	11⅜	4⅜
34	12½	19,300	18	14½	16⅞	Lion Oil Refining	270,000	N.P.	50cQ†	12-24-37	.75	17¾	7⅜	8⅛	3½
14¼	5¼	2,700	8⅛	7½	8⅛	Lone Star Gas	5,382,723	N.P.	20c	12-22-37	.60	14¼	9⅞	10⅞	4½
14⅝	6¼	1,300	7½	7¼	7¼	Midwest Oil Co.	998,444	$10	50c	12-15-37	....	....	..	..	..
7⅞	4⅛	2,400	4¾	4⅜	4½	Mountain Producers	1,682,182	$10	30cSA	12-15-37	.60	8⅜	5	5¾	4⅛
19½	12	1,700	13¾	13⅜	13¾	National Fuel Gas	3,810,183	N.P.	25cQ	10-15-37	1.00	23	17⅜	20	11¾
12½	7¼	1,200	8½	8	8	National Transit	509,000	$12.50	55cSA	12-15-37	.75	15¾	9¼	10⅝	6¾
6⅛	4½	500	4⅞	4⅞	4⅞	New Bradford Oil	1,445,202	$5	18c	9-17-37	.10	4⅝	2⅞	3¼	2
5	1⅛	300	1⅜	1⅜	1⅜	New Mexico and Arizona	1,000,000	$1	1c	12-1-36	.01	6⅝	1⅝	2½	1
5⅜	4	900	4½	4⅜	4½	New York Transit	100,000	$5	25cSA	10-15-37	.35	6¼	4¼	4⅞	3
12¾	5¾	200	6¼	6¼	6¼	Northern Pipe Line	120,000	$10	25cSA	12-1-37	.40	9¾	4⅞	8	5¼
9⅝	2¾	25,600	4⅞	4	4⅞	Pantepec Oil	1,608,700	N.P.	....	.....	....	10⅛	3¼	4⅜	1¼
13¾	2	800	3	2⅝	2⅞	Root Petroleum Co.	336,045	$1	25c	2-1-37	.50	19¼	4½	5	1½
6½	2¼	700	3⅛	2⅞	3⅛	Ryan Consolidated	296,931	N.P.	....	.....	....	4¾	1⅞	2½	⅝
56	35	1,500	36¼	35	35¾	South Penn Oil	1,000,000	$25	$1.15Q†	9-30-37	2.60	44	32½	34½	21⅝
7¼	3⅞	No sales	..	..	..	Southern Pipe Line	100,000	$10	25cSA	9-1-37	.25	7⅞	3¼	5	3⅞
42	20	50	20	20	20	South West Penna. Pine Lines	35,000	$50	50cQ	10-1-37	13.00	60	44	56	44¼
21⅛	14¾	2,300	17¾	16⅝	17¼	Standard Oil of Kentucky	2,604,790	$10	40cQ†	9-15-37	1.35	23⅜	17⅛	24	18
11⅜	8	300	8¾	8½	8¾	Standard Oil of Nebraska	188,403	$25	25c	3-29-37	.25	14⅝	11	12	7¾
45	16	400	22½	21	22½	Standard Oil of Ohio	753,740	$25	75cQ†	12-15-37	2.00	40	21¾	23⅝	11½
4⅞	2	3,800	3	2⅞	3	Sunray Oil	1,910,119	$1	10c	12-24-37	.10	5	2⅝	2⅞	⅞
7⅝	2	500	4½	4⅛	4⅜	Texon Oil & Land	336,028	$2	15cQ	1-3-38	.60	9¾	5⅜	6⅞	5

*Ex-dividend. †Includes extras. ‡Payable in Canadian funds.
Note—In comparing highs and lows for the several years in the two tables, it will be necessary to take into consideration cases where there have been stock split-ups.

PERSONAL

W. F. CHISHOLM, conservation engineer, and C. L. DAVIS, chemical engineer in the Louisiana department of conservation, have left Shreveport to attend the annual exposition of chemical industry in the Grand Central Palace, New York. They will represent the departments of conservation and of commerce and industry.

HAROLD M. COSGROVE, executive secretary of the Purchasing Agents Association of Tulsa, has been named chairman of the Purchasing Agents Committee of the International Petroleum Exposition. The Purchasing Agents Association serves buyers of oil-country equipment in Bartlesville, Tulsa, Ponca City, Okmulgee and Muskogee. In his position as chairman Mr. Cosgrove will help in building up attendance of equipment purchasers and other groups at the exposition to be held next May. He will cooperate too in arranging for entertainment features.

CLINT W. and DON W. JOSEY, officials of the Rancho and Gem oil companies, and MONROE H. GOODE, all of Dallas, Tex., have returned from a successful big-game hunt in the wilds of the Black Range, west of Hot Springs, N. M. En route home, the party stopped off in Southwest Texas and added other trophies.

R. J. PHILLIPPE, of Canton, Kans., has been appointed proration engineer in the Hugoton field in southwestern Kansas, it was announced this week by E. G. DAHLGREN, director of the oil and gas conservation division of the Kansas Corporation Commission. Mr. Phillippe had been stationed in the Burrton field, where he was helping to conduct an investigation preliminary to establishing a gas-oil ratio for the area. In his new post he will work under J. H. PAGE, who is in charge of the natural gas department of the conservation division.

D. DOUGLAS MacGREGOR, vice president of the Mitsubishi Oil Company, Ltd., recently returned from Japan, where his company maintains headquarters in Tokyo and operates a refinery in Kawasaki. Mr. MacGregor has spent eight years in Japan, and will go back to that country next February. In the meantime, while vacationing, he will reside in San Francisco with his family, and the Tide Water Associated Oil Company offices will be his headquarters.

JOSEPH E. MORERO, chief geologist for the Skelly Oil Company, left this week for Miami, Fla., to board a plane there for the Dominican republic, where he will inspect a 500,000-acre concession. He and CLEM S. CLARK, Shreveport, La., operator, who obtained the concession in which the Skelly company acquired an interest, planned to fly from Miami to Cuidad Macoris, on the east end of the island. From there they plan to go westward by automobile to the concession, which is in the province of Azula on the southern coast. M. W. MATHEWS, Skelly assistant field superintendent in the Oklahoma City field, has been named production head of the drilling to be done on the island.

LESLIE A. JOHNSTON has joined the geological staff of the Sunray Oil Company, Tulsa. He received his B.S. from the University of Tulsa in 1931 and was formerly with Sinclair Prairie Oil Company.

GEORGE VINES, general production superintendent for Creditul Minier S.A.R., of Bucharest, Rumania, sailed from New York November 24 aboard the Normandie after an extended visit in the United States. While in this country he visited fields in Oklahoma, Texas and California.

KOJIRO MATSUKATA, president of the North Sakhalin Oil Company, is a visitor in New York. He came to this country as a member of the good-will party from Japan making a world tour to explain the Japanese viewpoint in the Sino-Japanese conflict. He once studied at Yale University.

M. E. TRAPP, former governor of Oklahoma, and G. T. BLANKENSHIP have retired from the Farmers Mutual Royalty Syndicate, Inc., Oklahoma City, Okla., and have opened an office in the Petroleum Building, that city. The two have large oil holdings in Oklahoma, Kansas, New Mexico and Texas.

B. A. MYERS, director of the International Petroleum Company, and formerly general manager of the Tropical Oil Company's El Centro field in Colombia, is en route to that South American country for his annual inspection trip. Accompanying Mr. Myers is F. BIMEL, also a director of International. The two men will examine properties in Peru as well as Colombia before returning to the home office in Toronto, Canada, early in 1938.

Do You Remember?

From The Oil and Gas Journal Files

25 YEARS AGO

The growth of the hustling Roxana Petroleum Corporation, and the presence of numerous other, but smaller, foreign owners of production in Oklahoma, are matters of alarm to some patriots, who fear Europe may gobble up our American oil fields.

Mid-Continent crude purchasers are steadily advancing crude prices, but they do it only 2 or 3 cents at a time. Oklahoma-Kansas crude is now 78 cents per barrel.

In the first 11 months of this year 1,858 old wells were abandoned in northwestern Ohio, Indiana and Illinois.

20 YEARS AGO

The Standard Oil Company of New Jersey enters the Mexican fields with the purchase of the holdings of the Panuco-Excelsior Oil Company's properties. The company acquired was controlled by the Spellacy interests.

The United States this year will produce an average of about 918,600 barrels of crude oil per day and has been drawing heavily on stocks in order to fill war orders.

10 YEARS AGO

W. A. Moncrief, Marland Oil Company of Texas, is chairman of the Yates Pool Proration Committee. With a potential of 450,000 barrels a day and an allowable of 42,000 barrels, the committee has the job of parceling out the oil so that each of the 12 producers will get a fair deal.

C. R. McCollom resigns as chief geologist of Union Oil Company of California and is succeeded by Desaix B. Myers, Mr. McCollom's assistant for four years.

W. Scott Heywood, noted Louisiana and Texas operator, comparing early-day Spindletop gushers with present-day Yates pool big wells, says Heywood Brothers No. 2 Spindletop, which came in in 1901, filled a 37,500-barrel tank and two 1,200-barrel tanks at the rate of 148,000 barrels per day, and averaged 6,166 barrels per hour for over six hours.

HARRY C. WIESS, president of the Humble Oil & Refining Company, Houston, Tex., was elected to a three-year term on the board of directors of the Dallas Federal Reserve Bank.

PROF. JOHN McKENZIE has opened consulting offices in San Antonio, Tex. A mining engineer and graduate of Glasgow University, Scotland, he went to San Antonio from Minneapolis, Minn.

E. FABER, E. CETTO and H. A. KENOYER, independent oil operators of Los Angeles, Calif., have organized the Loftus Petroleum Corporation and will drill a well in the El Segundo field if developments during the next few weeks justify the expenditure.

JOHN A. McCUTCHIN has resigned as exploitation engineer in the Texas Panhandle, with headquarters in Amarillo, to take a similar position with the British American Oil Company in Oklahoma City, Okla. AL WEIDNER, formerly of the Amarillo office, will replace Mr. McCutchin.

J. O. McFADDIN, Amerada Petroleum Company's superintendent in California, has been spending most of his time recently in the Rio Vista gas fields, 50 miles northeast of San Francisco and over 400 miles from Mr. McFaddin's Los Angeles office. The field is controlled by Amerada.

E. W. COLLETT, appointed assistant manager of lubricating sales by the Richfield Oil Company of California, Los Angeles, went to that organization from Fort Worth, Tex., where he was in charge of industrial lubricating sales and national account sales for the Sinclair Refining Company's southwestern division. He had been with Sinclair 15 years.

PARAGRAPHS

GEORGE W. FOSTER, the Texas Company, Houston, Tex., and F. B. PLANK, the Cities Service Oil Company, Bartlesville, Okla., are in charge of the program for a joint meeting of taxation study groups of the Mid-Continent Oil and Gas Association to be held Thursday and Friday of this week in the Baker Hotel, Dallas, Tex. Mr. Foster is general chairman of the standing committee on state and local taxation, and Mr. Plank is general chairman of the standing committee on federal income and excise taxation.

CLAUDE S. CHAMBERS is to be master of ceremonies at the oil men's annual show and banquet in Seminole, Okla., Thursday evening of this week. DICK BRUMLEY is chairman of the program committee. The dinner is to be in the American Legion hut. The stag show will follow in the municipal auditorium, under the direction of Mr. Brumley. JESSE POLLOCK is chairman of the banquet committee and FRANK TATE chairman of the reception committee. The affair, which has come to be known as Oklahoma's biggest stag party, has been a regular event since the opening of the Seminole field in 1926.

C. E. STREETER, Bradford, Pa., producer, recently inspected properties in the Kansas fields.

J. F. WILSON, independent operator of Coalinga, Calif., has been spending some time in the San Joaquin wheat country east of Richgrove, where he is preparing to drill a wildcat.

R. C. HENDRIX, of the Humble Oil & Refining Company's Tomball natural gas system, has been transferred to the Amelia, Texas, district to replace T. C. TANKSLEY who was sent to the North Crowley district.

G. L. DUKE, field service division representative of the Pennsylvania Grade Crude Oil Association, has been transferred to New York to fill a vacancy existing since last summer when J. E. DICKSON was assigned to the Chicago territory. Mr. Duke has established residence at Ardsley.

DR. S. H. CATHCART, who resigned recently as senior Pennsylvania state geologist to join the geological department of the Socony-Vacuum Corporation, is en route to South America where he will be stationed. A survey of northwestern Pennsylvania oil counties begun by Doctor Cathcart is being continued under DR. A. B. CLEAVES.

FRANK TRAVERS, South Basin Oil Company; L. L. AUBERT, Bankline Oil Company; R. W. METCALF, Signal Oil & Gas Company; C. E. TABER, Seaboard Oil Corporation; A. B. JENKS, Fullerton Oil Company, and PAUL STANLEY, of the Barnsdall Oil Company, have been appointed members of the California Petroleum Safety Board sponsored by the Oil Producers Agency of California.

ALBERT F. BAPTIE, exploitation engineer for the Shell Oil Company at Bakersfield, Calif., discussed geologic and production details of his company's Ten Section field before a meeting of the San Joaquin Valley chapter of the A.P.I. at Taft on November 23.

SENATOR FRANK RAWLINS, of Fort Worth, Tex., defender of the oil industry against increased gross production taxes on Texas crude, will be the chief speaker at the annual district meeting of the West Central Texas Oil and Gas Association in Abilene on December 4. Other speakers on the program include CHARLES F. ROESER, of Fort Worth, president of the I.P.A.A.; H. C. BURKE, vice president of the Continental National Bank of Fort Worth; C. P. McGAHA, president of the Texas Mid-Continent Oil and Gas Association, Wichita Falls, and C. V. TERRELL, chairman of the Texas Railroad Commission.

EARL B. DOUGLAS, of the Sinclair-Wyoming Oil Company, was taken to the Hayden, Colo., hospital recently following an accident in which he suffered a severe injury of the head. Mr. Douglas was opening up a well owned jointly by his company and the Continental Oil Company in the Morapas gas field, Colorado, when the casing covering was blown loose and struck him. He was reported to be recovering.

C. E. STURDEVANT, division production superintendent for the Phillips Petroleum Company in Pampa, Tex., will be chairman of the 1938 convention to be held February 17 and 18 by the production division of the Mid-Continent district, American Petroleum Institute, in the Herring Hotel, Amarillo, Tex. The district covers Kansas, Oklahoma and the Texas Panhandle. C. A. DANIELS, district superintendent for Phillips in Amarillo, is chairman of the program committee.

A'll Lights Were Green

All lights were green on the road from a stool in the laboratory to the president's chair in the office of the Pennzoil Company for Winfield S. Zehrung, who completed the journey before his forty-first birthday. Perhaps the nickname Win had something to do with it, for it wasn't long after he went to work for Pennzoil in the laboratory in Rouseville, Pa., that a series of promotions began. That was only 18 years ago, shortly after he left the U. S. Army Air Corps.

W. S. ZEHRUNG

Mr. Zehrung was born in Montpelier, Ind., January 16, 1897, and no member of his family had been identified with the oil industry before young Win got the job in the Pennzoil lab. A degree from Allegheny College, Meadville, Pa., and some experience acquired in brief connections with the Mead-Penn Iron Works of Meadville and the air corps were his assets when he went to work for Pennzoil in 1919. They proved sufficient, however, to start him rising steadily from one job to another, culminating this year in his election to the presidency, where he succeeded Robert S. King, former head of the marketing division of the General Petroleum Corporation and Socony-Vacuum. After serving a short time as assistant chemist Mr. Zehrung was made chief chemist and then, successively, assistant refinery superintendent, manager of industrial sales, sales manager, general manager, vice president in charge of sales and a director.

E. H. CUNNINGHAM CRAIG, consulting geologist, has left London to visit properties in Trinidad owned by companies to which he is adviser.

H. E. POTTER, assistant division petroleum engineer of the Humble Oil & Refining Company in the East Texas division, has been promoted to division petroleum engineer.

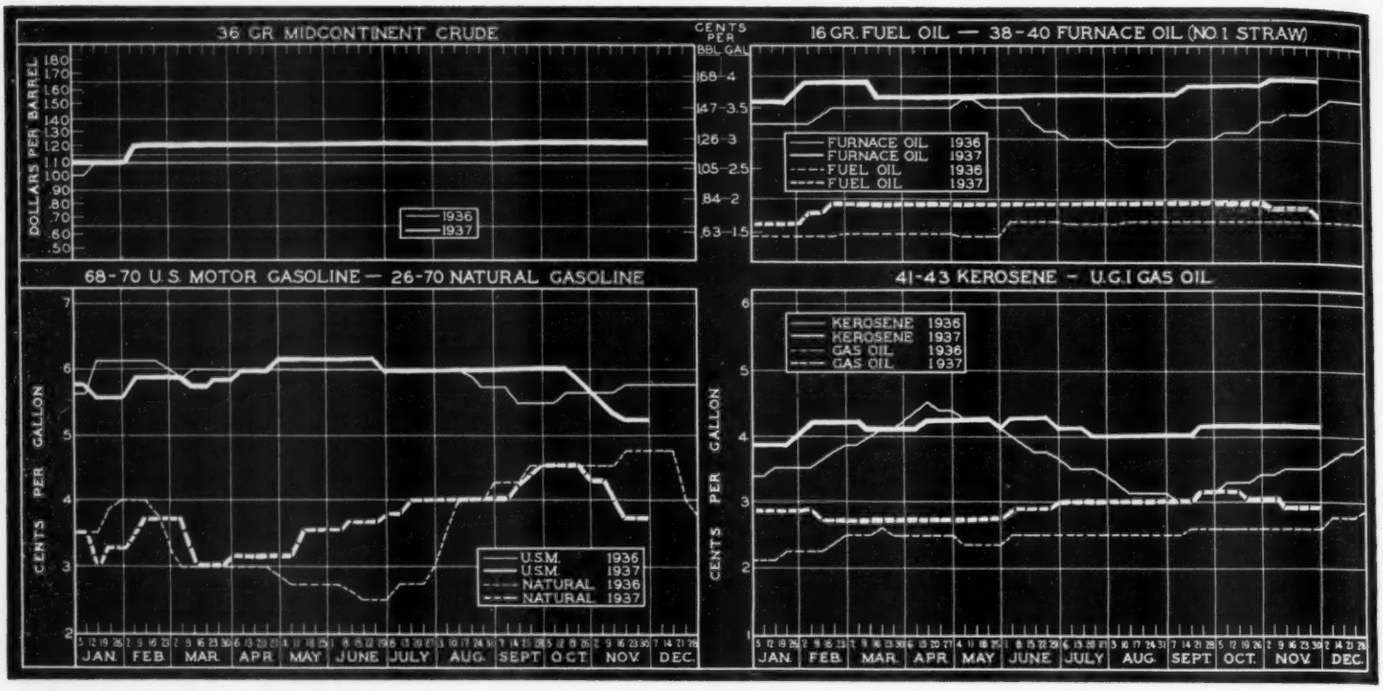
F. M. HALE, of the Socony-Vacuum Oil Company, with headquarters in Shanghai, China, is spending several weeks in Los Angeles, Calif., combining business with pleasure.

BEN STEINCAMP has been appointed new production superintendent of the Shell Oil Corporation in Fort Worth, Tex., replacing FRITZ OLSON who was transferred to Drumright, Okla.

E. J. THOMPSON, state senator; D. T. ANDRUS, producer, and DR. A. W. GAUGER, research director of the School of Mineral Industries, Pennsylvania State College, addressed a meeting of the Bradford producers' research group in Bradford last week.

FRANK S. HORNE, formerly refinery superintendent for the Barnsdall Refining Corporation in Wichita, Kans., is now in charge of the company's plant in Barnsdall, Okla. V. R. OAKLEY, who had been superintendent at Barnsdall, has taken Mr. Horne's place in Wichita.

J. L. HOWARD, formerly district sales representative for the Skelly Oil Company in southwestern Kansas and northwestern Oklahoma, has been made division manager of wholesale sales in Kansas City, Mo. MILO SEKAVEC succeeds him. E. J. THOMPSON has been appointed division manager in Wichita, Kans.



Representative Mid-Continent Quotations on Crude Oil and Refined Products, Basis Oklahoma (Group 3)

Gasoline Market in Group 3 Territory Continues to Show Steadier Tone

By T. F. SMILEY

The tankcar gasoline market was looking up a bit in the Group 3 area this week. The improvement was nothing to start hat-tossing, but it did draw admissions from even the deeply discouraged that further price declines were unlikely. One broker who had been picking up distress material at concessions during the recent period of crumbling prices said he was compelled to pay a quarter-cent more than he did a week or 10 days earlier. And when a broker says that, you've got to listen.

Steadier Market Expected

There was a pretty general feeling that the first week of December would be a somewhat critical one in the gasoline market, for the reason that it would find some small refiners engaged in their monthly scramble for cash to pay bills for crude. The pressure thus created has often forced a refiner to let gasoline go at whatever price he could get for it. The volume of material seeking hurried sale is sometimes large enough to unsettle the market and start quotations slipping downward. Although a few plants were known to have overheavy stocks this week, belief was expressed that the owners would not be forced to resort to underselling and that the second week of December would witness a steadier market.

In the East Texas area there was said to be no straightrun gasoline in extreme need of buyers. Some inventories of the cracked product, however, had grown to such size as to impel slightly shaded quotations. An inquiry for 200 cars of cracked gasoline was reported, and it was expected that most of the material, if not all of it, would be taken out of East Texas. Removal of that quantity would leave stocks in the area in a healthier condition.

Refined Oil Market Barometer

Gasoline market experiencing seasonal slackening, though somewhat steadier tone is observable in regions where prices had fallen to abnormally low levels. November consumption believed heaviest in history. Colder weather over extensive areas is stimulating demand for burning oils, with light grades of furnace distillates extremely tight. Heavy residual fuels slow.

MID-CONTINENT. Gasoline and naturals slightly steadier. Heating oils vigorous.

EAST COAST. Shading of gasoline prices continues. Light fuels and kerosene strong.

GULF COAST. Fuel oils stronger and gasoline somewhat firmer. Prices unchanged.

CALIFORNIA. Export market active. Domestic market slow but firm.

PENNSYLVANIA. Gasoline easier. Kerosene and fuel oil strong. Neutrals drifting lower.

CHICAGO. Gasoline weak. All grades of heating oil strong. Heavy fuels dull.

Available information indicated there would be further shutdowns if the owners of the plants could dispose of their crude supplies on satisfactory terms. Some of the large pipe line companies would take the crude on a six months contract, but independent refiners are disinclined to relinquish their connections on such a basis, believing they probably would want the oil themselves before the expiration of the contract. So they are doing the next best thing, cutting their runs to stills.

All the lighter grades of furnace distillates were finding ready purchasers. The No. 1 prime white and the No. 2 straw were in particularly lively demand, with offerings scarce. The No. 3 grade was probably the tightest in the group, not so much because there were more urgent calls for it as because relatively few refiners make it. The 40-42 and 41-43 tractor fuels were participating in the robust market for heating oils, presumably because these grades have come into common use as range oils. U. G. I. gas oil was dull, as were the heavy residual fuels, which now find their outlet restricted largely to railroads.

Better Tone in Naturals

Natural gasoline was sharing the moderately better tone which pervaded the market for the refined product. Manufacturers were reported well sold up. Shading of quotations which brought the price of 26-70 from 4½ cents in mid-October to 3¾ cents a few weeks later was no longer evident. Jobber buying was holding up well. Refiners have been increasing their takings on contracts to such an extent that some of the large manufacturers were finding it necessary to become buyers in order to comply with requests for immediate shipment. Jobbers allowed their stocks to run low while prices were headed downward. The growing belief that prices for refined gasoline have reached bottom has had a stabilizing effect on the naturals, with the result that jobbers are showing a disposition to replenish depleted inventories. Orders for three part cargoes were placed in the past week.

The lubricant group showed little change. Movement on contract was in substantial volume, but underselling in certain quarters was reported. Wax, at unchanged prices, was a little steadier.

Gasoline Easier, Heating Oils Gaining Vigor in Eastern Refined Market

By H. STANLEY NORMAN

NEW YORK, Nov. 30.—Further recessions in the motor fuel market were reported last week from scattered portions of the Atlantic seaboard territory, although the basic factors were unchanged from the cuts made during the middle and first parts of November.

Lower tank car gasoline prices were reported in the Boston district and western Pennsylvania refiners were forced to shade their previous quotations to withstand inroads on their normal marketing territory from Ohio suppliers. Interest in gasoline was dull in the New York harbor district and cargoes on the Gulf Coast were reported softer than they had been for several months.

In contrast, the kerosene, gas oil and light fuel oil markets were strong with volume of movement on spot sales and against contracts picking up sharply during a week of subfreezing temperatures. Heavy fuel oil was reported reasonably firm.

Reports were current in New York that spot cargoes of East Texas crude oil were available on the Gulf Coast at approximately 16 cents per barrel over the field posted price, which is fully a cent and a half below the pipe line tariff and dockloading charges. On a contract, East Texas crude f.o.b. the Gulf Coast is available at 18 cents per barrel over the posted field price. Observers were watching the open Gulf Coast market on East Texas crude for a reflection of the Sunday shutdown order. Whether this will be sufficient to halt the downward trend remains to be seen. The open Gulf Coast market for East Texas crude is particularly significant in view of the conditions existing last summer immediately before the posted price in that field was elevated. Before the price advance last May 22 the f.o.b. Gulf Coast quotation moved up to as high as 25 to 27 cents per barrel over the field posting.

Indication that the heavy fuel oil market is in reasonably firm position was given with award of navy department contracts. The Bureau of Supplies and Accounts, navy department, purchased approximately 721,900 bbls. of fuel oil for East Coast requirements at an approximate cost of $1,033,553, or about $1.449 per barrel. Certain delivery requirements and specifications made the average per barrel cost considerably above the open market on Bunker C fuel oil, which remains unchanged at $1.25 per barrel in New York and Philadelphia harbors. Furthermore, some of the fuel purchased by the navy was for diesel service, having a tendency to increase the average cost. Diesel fuel oil remains unchanged in the open market at $2.20 per barrel in New York harbor and nearby plants.

Marketers in this section were watching plans for a joint meeting in Chicago called for December 20 at which all state legislative committees investigating the petroleum industry have been invited. Governors of states without committees investigating the oil industry have been invited to attend or send qualified representatives to the joint meeting.

Harold B. Ehrlich, assemblyman from Buffalo and chairman of the New York legislative committee investigating the oil industry, sponsored the interstate meeting. Ehrlich's committee has held several hearings and only the preceding week held a two-day meeting in New York, at which the chairman's plan for licensing service stations and grading gasoline was opposed by representatives of several companies. About 10 other states have committees investigating various phases of the oil industry or have bureaus established for supervision of various phases of marketing. One New York oil man laconically suggested last week that the Interstate Commerce Commission should exercise jurisdiction over transportation of legislative investigators across state lines. And that surely this latest scheduled meeting must represent some form of collusion.

Suppliers ideas on the value of gasoline on the Gulf Coast continue slightly higher than buyers are apparently willing to bid, leading to inactivity so far as the open cargo market is concerned. Inquiries from foreign buyers are circulated frequently, but during the past two weeks little business has developed for American suppliers. Gulf Coast refiners are generally asking 5⅝ to 5¾ cents per gallon for 64-66. 375-endpoint gasoline.

Much the same condition prevails in the light fuel oil and gas oil market. Suppliers are unwilling to quote below 4⅝ cents per gallon for No. 2 fuel oil meeting export specifications, while 4½ cents more nearly represents the figure buyers appear willing to offer. The light fuel oil movement in coastwise trade against contracts is brisk and some refiners are reported unable to quote in the open market for 60 days.

Tank-wagon fuel oil sales in the New York district hit a new peak for the winter a week ago and held up through Saturday. Temperatures dipped slightly below freezing nearly every night last week and during at least half of the days hovered below or at the freezing point. There was still no upward swing in the tank-wagon market, but practically all instances of price shading in this phase of the heating oil business have disappeared during the past two or three weeks.

In the Boston district, 60-64 octane gasoline was reported offered in substantial quantities and from a number of suppliers at 6¾ cents per gallon compared to a price range of 7 to 7¼ cents prevailing up to 10 days or two weeks ago. Some suppliers were still quoting 7¼ cents per gallon on this grade of gasoline at Boston, but were said to be doing very little open market business. In other scattered points along the Atlantic seaboard from North Carolina to New England, the tankcar market for gasoline was reported a shade lower, although in some instances the changes were confined to narrowing the range between the high and low asking prices.

The retail price structure in New York remains unchanged. Within New York city limits, where a 2 per cent sales tax prevails, 5 gallons of regular gasoline are offered at 95 cents, including taxes. In the metropolitan area, but beyond New York City limits, the general price is 19 cents per gallon for regular branded motor fuel. The price structure in northern New Jersey remains in its customary state of unsettlement.

Bright stocks continue firm in the western Pennsylvania refining district along with kerosene and fuel oil, but neutrals and some grades of cylinder stock are moving at lower figures. Gasoline is also slightly lower. Refiners in the lower part of the western Pennsylvania district have been compelled to cut low octane motor fuel at successive intervals about a cent per gallon to meet competition from Ohio. Conditions are not so disturbed in the northern part of the

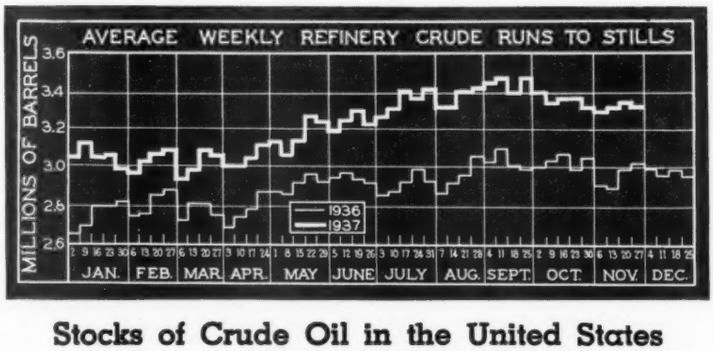
(Continued on Page 106)

A. P. I. Weekly Refinery Statistics

Week Ending November 27, 1937

	Capacity reporting (per cent)	Daily crude runs (bbls.)	Total gasoline stocks	Gas oil and fuel oil stocks
East Coast	100.0	521,000	17,602,000	14,598,000
Appalachian	88.4	106,000	2,815,000	1,044,000
Indiana, Illinois, Kentucky	92.4	458,000	10,148,000	7,441,000
Oklahoma, Kansas, Missouri	84.7	278,000	6,215,000	3,907,000
Inland Texas	56.6	134,000	2,269,000	1,813,000
Texas Gulf	95.7	712,000	9,361,000	12,204,000
Louisiana Gulf	96.6	143,000	1,754,000	3,463,000
North Louisiana and Arkansas	63.7	53,000	481,000	523,000
Rocky Mountains	69.7	56,000	1,476,000	656,000
California	90.9	545,000	12,663,000	72,717,000
Total reported	89.0	3,006,000	64,784,000	118,366,000
Estimated unreported	.....	319,000	3,760,000	3,250,000
*Estimated total	.....	3,325,000	68,544,000	121,616,000
*Estimated total, previous week	.....	3,365,000	67,661,000	121,191,000
*November 28, 1936	.....	3,020,000	57,448,000	112,025,000

*Bureau of Mines, currently estimated.



Stocks of Crude Oil in the United States

(BUREAU OF MINES ESTIMATES)

Week ending November 20, 1937	304,324,000 barrels
Week ending November 13, 1937	305,608,000 barrels
Week ending November 21, 1936	288,428,000 barrels

RETAIL OIL MARKETS

Tank-wagon and filling station prices on gasoline and kerosene furnished by the larger marketing firms

Prices as of November 30, 1937

Taxes

The gasoline quotations given in the following tables include the 1-cent federal tax, as well as state, county and city taxes. The gasoline is the regular or standard grade. In most areas a third grade and a premium grade are also available.

Standard Oil Co. (Indiana)

	Gasoline Tank wag.	Dlr.	Inc. tax	Kero. tank wag.
Chicago, Ill.	15 3	13 3	4.0	10.2
Decatur	15 3	13 8	4.0	10.2
Joliet	15 3	13.8	4.0	10.2
Peoria	15.3	13.8	4 0	10 2
Quincy	15 1	13.6	4 0	10 0
Davenport, Ia.	15.3	13 8	4 0	‡13 2
Des Moines	15 1	13 6	4 0	‡13 0
Mason City	15 4	13 9	4 0	‡13 3
Sioux City	15.3	13.8	4 0	‡13 2
Duluth, Minn.	17 0	15 5	5 0	10 9
Mankato	16 7	15 2	5 0	10 6
Minneapolis	16 7	15 2	5 0	10.6
Lacrosse, Wis	16 7	15 2	5 0	10 6
Green Bay	17 0	15 5	5 0	10 9
Milwaukee	16 5	15 0	5.0	10 4
Detroit, Mich.	15 1	13 6	4.0	9.8
Grand Rapids	16 3	14 8	4 0	11.0
Saginaw	16 1	14 6	4 0	8 6
Evansville, Ind.	16 8	15 3	5 0	†10.7
Indianapolis	16 9	15.4	5 0	†10.8
South Bend	17 2	15.7	5 0	†9.7
Fargo, N. Dak.	16 7	15.2	4 0	11.6
Minot	17 9	16 4	4 0	12.8
Huron, S. Dak.	17 1	15 6	5.0	11.0
Kans. City, Mo.*	14 6	13.1	4.0	8 0
St. Louis*	14 9	13.4	4.0	9.8
St. Joseph	14.6	12.4	4.0	8.5
Wichita, Kans.	14.1	12 4	4 0	8.0

*State tax 2 cents, 1-cent city tax and 1-cent federal tax. †Does not include 4-cent state tax. ‡Iowa kerosene prices include 3-cent state tax.

(Exclusive of state general sales taxes, except Indiana and South Dakota.)

Discounts to commercial consumers: On purchases per month off tank-wagon prices: 1,000 gallons or more, 1.5 cents off; minimum delivery 25 gallons.

Stanolex Fuel Oil in Chicago

Effective Dec. 7, 1936, f.o.b. Chicago tank-wagon prices: Range oil, 1-99 gallons, 8.8 cents; 100-149 gallons, 7.8 cents; 150 gallons and over, 7.3 cents. Stanolex No. 1, 1-99 gallons, 8.8 cents; 100-149 gallons, 7.8 cents; 150 gallons and over, 7.0 cents. Stanolex furnace oil, 1-149 gallons, 7.8 cents; 150 gallons and over, 7.0 cents. Stanolex A, 1-399 gallons, 5.75 cents; 400 gallons and over, 4.75 cents. Stanolex B, 1-799 gallons, 5.75 cents; 800 gallons and over, 4.75 cents.

Atlantic Coast District

STANDARD OIL CO. OF NEW JERSEY

	Gasoline Tank wag. dlr.	Tank car con'r.	Inc. tax	Kero. tank wag.
Atl'tic City, N. J.	12 75	11.25	4.0	9.0
Newark	12.75	11.25	4.0	9 0
Annapolis, Md.	14 85	13 35	5 0	9 5
Baltimore	14.25	12.75	5 0	9.0
Cumberland	16 65	14.15	5 0	10.0
Wash'g'n, D. C.	12.5	11.0	3 0	9.5
Danville, Va.	17 45	14 95	6 0	12.9
Norfolk	16 25	13 75	6 0	11.5
Petersburg	16 55	14 05	6 0	11.7
Richmond	16 55	14.05	6.0	11.7
Roanoke	17 75	15.25	6.0	12.9
Charles'n, W. V.	17 05	14 55	6 0	12 6
Parkersburg	16 35	13.85	6.0	11.2
Wheeling	17 0	14 85	6 0	12 2
Charlotte, N. C.	18 65	16 15	7 0	12.0
Hickory	19 15	16 65	7 0	13 0
Mt. Airy	18 95	16 45	7 0	12 8
Raleigh	18 25	15 75	7 0	12.1
Salisbury	18 75	16 25	7 0	12.7
Charleston, S. C.	17 25	14.75	7.0	11.1
Columbia	18 25	15 75	7 0	12.1
Spartanburg	18.95	16.45	7.0	12.9

Price basis to commercial consumers, effective March 8, 1937, in Maryland, District of Columbia, and in Arlington and Fairfax counties in Virginia; and March 12 in New Jersey: To contract accounts purchasing at least one full compartment at time by hose connection, on yearly purchases: From 2,500 to 100,000 gallons, consumer tank-wagon price at time and place of delivery; 100,000 gallons per year, consumer tankcar price plus .5 cent per gallon. Consumer tank-wagon price generally will be equivalent to dealer tank-wagon price less .5-cent per gallon.

Effective May 15, 1937, in North and South Carolina, West Virginia and Virginia (except Arlington and Fairfax counties): Commercial consumers taking deliveries of 50 gallons (W. Va., 100 gallons) or more at one time will be billed at posted consumer tank-wagon price. Accounts taking deliveries of less than 50 gallons (W. Va., 100 gallons) will be billed at 4 cents per gallon over posted consumer tank-wagon price. Generally the posted consumer tank-wagon price will be equivalent to the dealer price less .5 cent per gallon.

Discount for kerosene, 1 cent off tank-wagon price for 25 gallons or more under contract (contract not necessary in Baltimore) except no discount in New Jersey

Southern District

STANDARD OIL CO. OF KENTUCKY

	Gasoline Tank wag.	Net dlr.	Inc. tax	Kero. tank wag.
Atlanta, Ga.	21.0	18 0	7.0*	†12.0
Augusta	21.0	18 0	7 0	*14.0
Macon	21.5	18 5	7 0	*14.5
Savannah	19 0	16 0	7 0	*12.0
Birm'ham, Ala.	22.0	19.0	8.0	12.0
Mobile	22 0	19 0	9 0	11.0
Montgomery	22 0	19 0	9 0	14 5
Jackson, Miss.	20 0	17.0	7.0	*13 0
Vicksburg	20 0	17.0	7.0	*13.0
Jacksonville, Fla.	20 0	17.0	8 0	†10.0
Miami	20 5	17.5	8.0	†12.5
Pensacola	22 0	19 0	9 0	12.0
Tampa	19 0	16 0	8 0	10.5
Lexington, Ky.	19.5	16 5	6 0	11.0
Covington	19 0	16 0	6 0	11.0
Louisville	19 0	16 0	6 0	10.5
Paducah	19.5	16.5	6.0	10.0

Price basis to tank-wagon consumers: Effective January 4, 1937, 3 cents per gallon below tank-wagon price. Kerosene prices in all states subject to 2 cents discount except in Kentucky where prices are net.

*Includes 1-cent state tax. †Subject to 2-cent discount.

Montgomery, Ala., has a county tax of 1 cent per gallon, and a city tax of 1 cent per gallon on gasoline, in addition to state tax; and 1 cent per gallon on kerosene. Mobile, Ala., has a city gasoline tax of 2 cents per gallon; Birmingham, Ala., has a city gasoline tax of 1 cent per gallon; Pensacola has a city gasoline tax of 1 cent.

Rocky Mountain District

CONTINENTAL OIL CO.

	Gasoline Dealer	Inc. tax	Kero. tank wag.
Denver, Colo.	16 5	5 0	11.5
Grand Junction	19.0	5.0	15.0
Pueblo	16 0	5 0	10 5
Casper, Wyo.	17.0	5.0	11.5
Cheyenne	16 0	5 0	13 0
Butte, Mont.	19 0	6 0	15.5
Billings	19 5	6 0	15.5
Helena	19.5	6 0	15.5
Great Falls	19 5	6 0	15.5
Salt Lake City, Utah	19.5	5.0	16.0
Twin Falls, Ida.	21 0	6 0	18 0
Boise	21.5	6 0	18 0
Albuquerque, N. M.	17.5	*6.5	12.0

*Includes city tax of one-half cent.

Ohio

STANDARD OIL CO. OF OHIO

	Gasoline Tank wag. dlr.	Di-vided dlr.	Inc. tax	Kero. tank wag.
Ohio points	16.5	15.5	5.0	*13.5

*Includes state tax of 1 cent.

New York and New England

SOCONY-VACUUM OIL CO., INC.

	Gasoline Tank wag. dlr.	Tank car con'r.	Inc. tax	Kero. tank wag.
Albany, N. Y.	14.5	13.0	5.0	9.0
*Met. N. Y.:				
Manh't'n, Br'nx	14.0	13.0	5.0	9.0
Staten Island	14 5	13 0	5 0	9 0
Q'ns. & Brklyn	14.0	13.0	5 0	9 0
Buffalo	15 05	13 54	5.0	8.5
Rochester	15 0	13 67	5 0	8 5
Syracuse	15 0	14.7	5 0	9.5
Boston, Mass.	11 75	13 0	4 0	8 5
Portland, Me.	14 8	13 0	5 0	8 75
Manch'ter, N. H.	15.8	13.5	5.0	9 5
Burlington, Vt.	15.4	13.4	5.0	9.5

*Does not include 2 per cent city sales tax which is calculated on basis of net retail price exclusive of state and federal taxes.

Price basis to undivided dealer: Posted dealer tank-wagon price less .5 cent. Price basis to commercial consumer: Effective Nov. 15, 1936, monthly purchases of 25,000 gallons and over, consumer tankcar prices at delivery point plus .5 cent per gallon; monthly purchases of 5,000 to 25,000 gallons, undivided dealer price at delivery point; monthly purchases under 5,000 gallons, pay divided dealer tank-wagon price at delivery point.

Pacific Coast Territory

STANDARD OIL CO. OF CALIFORNIA

	Gasoline Tank wag.	Serv. sta.	Inc. tax	Kero. tank wag.
San Francisco	17 5	18 5	4.0	11.5
Los Angeles	17.0	18 0	4.0	9.0
Fresno, Calif.	18.5	19 5	4.0	12.0
Phoenix, Ariz.	21 0	22.0	6.0	‡16.0
Reno, Nev.	20 0	21.0	5.0	13.0
Portland, Ore.	20 0	21.0	6.0	13.5
Seattle, Wash.	20 0	21.0	6 0	13.5
Spokane	23 0	24.0	6 0	16.5
Tacoma	20.0	21.0	6.0	13.5

‡Includes 5-cent state tax.

Discounts to dealers: On gasoline, off tank-wagon price, to 100 per cent dealers, 3 cents; to split dealers, 2 cents. To commercial consumers: on tank-wagon price: on single deliveries of 40 gallons and over, advance quantity discount extended at time of delivery, 3 cents. Service station schedule applies on single deliveries less than 40 gallons. On kerosene in tankcar, transport truck and trailer delivery, 3 cents off tank-wagon price; plant deliveries to jobbers, 2.5 cents below tank-wagon.

Nebraska

STANDARD OIL CO. OF NEBRASKA

	Gasoline Tank wag.	Dlr.	Inc. tax	Kero. tank-wag.
Omaha	17.7	16 2	6 0	10.5
McCook	18.1	14.1	6.0	10.1
Norfolk	18 1	16 6	6.0	10.9
North Platte	18.5	17.0	6.0	11.3
Scotts Bluff	19.2	16.0	6.0	12.0

Discounts to commercial consumers for tank-wagon deliveries covered only by standard commercial consumers contract, effective Jan. 1, 1935.

Central South District

STANDARD OIL CO. OF LOUISIANA

	Gasoline Tank wag. dlr.	Tank car con'r.	Inc. tax	Kero. tank wag.
N. Orleans, La.	19 75	17.25	*10.0	†13.0
Baton Rouge	17.75	15.25	8 0	12.0
Alexandria	18.25	15.75	8.0	12.0
Lafayette	18.75	16.25	8 0	13.0
Lake Charles	18.75	16.25	8.0	12.5
Shreveport	17.25	14.75	8.0	9 5
Kn'xv'le, Tenn.	20.75	18.25	8.0	14.0
Memphis	18.75	16.25	8.0	12.0
Chattanooga	20.25	17.75	8.0	13.5
Nashville	19.75	17.25	8 0	11.5
Bristol	19.50	18.25	8.0	14.5

*Includes 2-cent parish tax. †Includes 1-cent parish tax and 1-cent state tax.

Price basis to commercial consumers: Effective May 15, 1937, deliveries of 50 gallons or more in one delivery takes posted consumer tank-wagon price. Accounts taking deliveries of less than 50 gallons at one time pay posted consumer tank-wagon price plus 4 cents per gallon. Generally, the posted consumer tank-wagon price will be equivalent to the dealer price less .5 cent per gallon.

Louisiana kerosene prices include 1 cent state tax.

Pennsylvania, Delaware and Part of New England

ATLANTIC REFINING CO.

	Gasoline Tank wag. dlr.	Tank car con'r.	Inc. tax	Kero. tank wag.
Philadelphia, Pa.	13 75	12 25	5 0	10 5
Pittsburgh	15 0	13 0	5 0	11.0
Allentown	14 25	12 75	5 0	11.0
Erie	14 5	13 0	5.0	10.0
Scranton	14 5	13 0	5 0	11.0
Altoona	15 0	13.0	5 0	11.0
Dover, Del.	14 5	....	5 0	11.0
Wilmington	14 0	....	5 0	11.0
Spring'd, Mass.	13 3	....	4 0	8 5
Worcester	14.3	....	4.0	9.0
Hartford, Conn.	13 6	....	4 0	9 0
New Haven	13 5	....	4 0	9 0
Providence, R. I.	13 5	....	4 0	8 5

Price basis to undivided dealers, dealer tank-wagon price less .5 cent per gallon. Price basis to commercial consumers in Pennsylvania and Delaware, effective March 11, 1937: Consumers under contract using 100,000 gallons or more per year full compartment hose deliveries, tankcar plus .5 cent. Consumers under contract using less than 100,000 gallons per year compartment hose deliveries, undivided dealer price. Consumers under contract less than full compartment delivery, consumers not under contract less than full compartment delivery, and consumers not under contract full compartment delivery, divided dealer price. Less than 25 gallons, tank-wagon delivery, 4 cents per gallon above undivided dealer price.

Oklahoma and Arkansas

CONTINENTAL OIL CO.

	Gasoline Dealer	Inc. tax	Kero. tank wag.
Muskogee, Okla.	14.5	5.0	7.0
Oklahoma City	14 0	5 0	8.0
Tulsa	14.0	5.0	6.0
Ft. Smith, Ark.	14 75	5 0	8.0
Little Rock	17.25	7.5	9.5
Texarkana	14 5	5 0	8 5

Texas

	Gasoline Tank wag.	Serv. sta.	Inc. tax	Kero. tank wag.
Dallas, Tex.	14.0	18.5	5.0	8.0
Fort Worth	14.0	18 0	5.0	8.0
Houston	14.5	19 0	5.0	8.0
San Antonio	14.5	18.5	5.0	8.0

Naphtha

STANDARD OIL CO. (INDIANA)

	Tank-wagon*
Oleum spirits	15.7
V.M.&P. naphtha	16.0
Cleaners' naphtha	15.0
Stanisol	15.0

*Prices include 3-cent Illinois tax, but not 1-cent federal tax or 2 per cent retail occupational tax.

Prices f.o.b. Chicago. Each price subject to discount of 1 cent per gallon for 150 gallon lots if covered by contract.

Canada*

3 Star Imperial Gasoline
IMPERIAL OIL, LTD.

	Tank-wag.	Inc. tax	Kero. tank-wag.
Halifax, N.S.	24 0	8 0	18.5
St. John, N.B.	24 0	8 0	18.5
Montreal, Que.	21 0	6 0	17.5
Toronto, Ont.	22 0	6 0	17.0
Hamilton, Ont.	22 0	6 0	17.0
Winnipeg, Man.	27 5	7 0	20.7
Brandon, Man.	29 8	7 0	22 3
Regina, Sask.	28 5	7 0	22 0
Saskatoon, Sask.	31 3	7 0	24 8
Edmonton, Alta.	28 0	7 0	23 0
Calgary, Alta.	25 5	7 0	20 5
Vancouver, B.C.	23 0	7 0	23.0

*Imperial gallon used in Canada.

Divided dealers pay tank-wagon price. Discount to undivided dealers, 1 cent below tank-wagon price. In maritime provinces both divided and undivided dealers pay tank-wagon price.

Retail Price Changes

Standard Oil Co. (Indiana) November 17 advanced tank-wagon kerosene .1 cent at all Illinois points, all Iowa points (except Mason City), and in Mankato, Minneapolis, LaCrosse, Green Bay, Grand Rapids, Saginaw, Evansville, South Bend, Fargo, Minot and Huron.

Continental Oil Co. November 16 reduced dealer gasoline .75 cent in Fort Smith; November 20 reduced dealer gasoline 1 cent in Texarkana; November 23 reduced dealer gasoline 1 cent in Cheyenne; and November 24 reduced dealer gasoline .5 cent in Twin Falls.

Atlantic Refining Co. November 22 reduced commercial tankcar and tank-wagon gasoline .25 cent in Philadelphia, .5 cent in Pittsburgh, .75 cent in Allentown, .5 cent in Scranton and .5 cent in Altoona; October 23 advanced dealer gasoline .5 cent in Wilmington; October 30 reduced tank-wagon kerosene .5 cent in Springfield; November 2 reduced dealer gasoline .5 cent in Hartford, New Haven, and Providence.

Imperial Oil, Ltd., November 22 reduced posted tank-wagon gasoline 1 cent in Regina and Saskatoon, and 1.5 cents in Edmonton and Calgary; November 22 reduced tank-wagon kerosene 1.2 cents in Edmonton and 1 cent in Calgary.

Canadian Fields

(Continued from Page 90)

after setting 6⅝-inch casing on top of the Trenton limestone.

In the Norfolk County end of the Eden field, Middleton-Norfolk Oil & Gas Co. No. 4, Lot 6, Concession 2, Middleton Township, failed to get production in the gas sand around 900 feet and was abandoned in a white water sand at 930 feet.

PRICES OF REFINED PRODUCTS

All quotations f.o.b. plant in cars for interstate or export movement except as otherwise noted

Prices as of November 30, 1937

The following quotations are exclusive of the federal excise taxes of 1 cent a gallon on gasoline and 4 cents on lubricating oils.

Refinery Gasoline

OKLAHOMA (Group 3)—

U. S. Motor grades:		
62 oct. and below (3d gr.)	.04⅛	.04⅜
63-66 octane	.04½	.04⅝
67-69 octane	.04⅞	.05
70-72 octane (regular)	.05¼	.05⅜
60-62 400 grades:		
62 oct. and below (3d gr.)	.04⅛	.04⅜
63-66 octane	.04½	.04⅝
67-69 octane	.04⅞	.05
70-72 octane (regular)	.05¼	.05⅜
64-66 375	.04¾	.05
68-70 360	.05	.05⅛

NORTH TEXAS—

U. S. Motor grades:		
62 octane and below	.04⅛	.04⅜
63-66 octane	.04½	.04⅝
67-69 octane	.04⅞	.05
70-72 octane (regular)	.05¼	.05⅜
60-62 400	.04⅛	.04⅜
64-66 375	.04¾	.05

NORTH LOUISIANA (Ark., N. La. and Miss. delivery)—

U. S. Motor grades:		
62 octane and below	.04¾	.05
63-66 octane	.05	.05⅛
67-69 octane	.05⅛	.05½
70-72 octane (regular)	.05¾	.05⅞

ARKANSAS (Ark., N. La., Miss. del.)—

U. S. Motor grades:		
62 octane and below	.04¾	.05⅛
63-66 octane	.05	.05¼
67-69 octane	.05⅜	.05⅝
70-72 octane (regular)	.05¾	.05⅞

CHICAGO (Based on Group 3)—

U. S. Motor grades:		
62 octane and below	.04⅛	.04⅜
63-66 octane	.04½	.04¾
67-69 octane	.04⅞	.05⅛
70-72 octane (regular)	.05¼	.05½
60-62 400 grades:		
62 octane and below	.04⅛	.04⅜
63-66 octane	.04½	.04¾
67-69 octane	.04⅞	.05⅛
70-72 octane (regular)	.05¼	.05½
64-66 375	.04¾	.05⅛
68-70 360	.05	.05¼

PENNSYLVANIA (Inland refineries)—

58-60 U. S. Motor:		
Below 60 octane	.05	.05¼
60-64.9 octane	.07½	.07⅝
65-70 octane	.07¼	.07½
64-66 390	.06½	.06⅝
68-70 350	.06¼	.06⅜

CALIFORNIA (domestic movement)—

54-58 U. S. Motor	.07½	.08½
58-60 400, 65 oct. and higher	.08¼	.09¼

EAST COAST (Domestic)—

U. S. Motor below 60 octane:		
*New York (Bayonne)	.06¼	.06½
Baltimore	.06	.06¼
U. S. Motor, 60-64.9 octane:		
*New York (Bayonne)	.07¼	.07¾
Philadelphia	.07¼	.07½
Boston	.07¾	.08¼
Baltimore	.07¼	.07½
Charleston, S. C.	.07¼	.07¾
U. S. Motor, 65 and above:		
*New York (Bayonne)	.07½	.08
Philadelphia	.07¼	.07¾
Boston	.07¾	.08¼
Baltimore	.07¼	.08
Charleston, S. C.	.07¾	.08¼

*All grades of gasoline one-eighth to one-fourth cent less for barge shipments. New York harbor prices are for New York and New England delivery. Prices for New Jersey delivery one-fourth cent lower.

GULF COAST (domestic)—

U. S. Motor grades:		
Below 60 octane	.05¾	.05½
60-64.9		.05⅝
65 octane and higher		.05¾

Naphtha

PENNSYLVANIA (Inland refineries)—

50-52 450 (blending)	.05	.05¼
52-54 450 (blending)	.05	.05¼
54-56 450 (blending)	.05¼	.05⅝

Natural Gasoline

OKLAHOMA (Group 3)—

Grade 26-70	.03¾
Grade 18-55	.04½

NORTH TEXAS—

Grade 26-70	.03¾
Grade 18-55	.04½

CALIFORNIA—

75-85 375-390	.06¾	.07½

NORTH LOUISIANA (Ark., N. La. and Miss. delivery)—

Grade 26-70	.04⅝	.04¾

Tractor Fuel

OKLAHOMA (Group 3)—

40-42 gr., 315-325 i.b.p., 110 flash, 540-550 e.p.	.04⅛	.04¼
41-43 gr., 300-350 i.b.p., 110-125 flash, 500-520 e.p.	.04¼	.04½
46-48 gr., 210-230 i.b.p., 480 max., e.p.	.04¾	.04⅞

Kerosene

(All kerosene water white)

OKLAHOMA (Group 3)—

41-43	.04⅛	.04¼
42-44	.04¼	.04½

NORTH TEXAS—

41-43	.04⅛	.04¼

NORTH LOUISIANA (Ark., N. La. and Miss. delivery)—

41-43	.04½

ARKANSAS (Ark., N. La., Miss. del.)—

41-43	.04½

PENNSYLVANIA (Inland refineries)—

45	.05½	.05⅝
46	.05⅝	.05¾
47	.05¾	.05⅞

CHICAGO (Based on Group 3)—

41-43	.04	.04¼
42-44	.04¼	.04½

CALIFORNIA (Pac. Coast market)—

38-43 high burning test	.05¼	.06¼

NEW YORK (Bayonne, N. J.)—

41-43	.06 3/10

***GULF COAST (domestic)—**

41-43	.05¼

*Barge price one-eighth cent lower.

Furnace Oil

OKLAHOMA (Group 3)—

No. 1 prime white, 38-42	.04	.04⅛
No. 1 straw, 38-40	.03⅞	.04
No. 2 straw, 32-36	.03¾	.03⅞
No. 2 dark, 32-36	.03½	.03¾
No. 3 zero to 15, 28-32	.03⅜	.03½
No. 3, 15 and above, 28-32	.02⅞	.03

NORTH TEXAS—

No. 1 prime white, 38-42	.04	.04⅛
No. 1 straw, 38-40	.03¾	.03⅞

NORTH LOUISIANA (Ark., N. La. and Miss. delivery)—

No. 2, 32-36	.03½	.03⅝

ARKANSAS (Ark., N. La., Miss. del.)—

No. 2, 32-36	.03¾

CHICAGO (Based on Group 3)—

No. 1 prime white, 38-40	.04	.04⅛
No. 1 straw, 38-40	.03¾	.04
No. 2 straw, 32-36	.03⅝	.03⅞
No. 2 dark, 32-36	.03½	.03¾
No. 3, zero to 15, 28-32	.03¾	.03½
No. 3, 15 and above, 28-32	.02⅞	.03

NEW YORK (Bayonne, N. J.)—

*No. 1	.06 3/10
*No. 2	.05½
*No. 4	.05¼

*Barge deliveries one-eighth to one-fourth cent under above tankcar price.

Gas Oil and Fuel Oil

(Gas oil per gal.; fuel oil per bbl.)

OKLAHOMA (Group 3)—

U.G.I. gas oil	.02⅞	.03
No. 4, low cold test, 24-28	1.07½	1.12½
No. 4, 15 and above, 24-28	.90	.95
No. 5, low cold test, 18-22	.82½	.87½
Below 18 fuel oil, industrial	.72½	.77½

NORTH TEXAS—

U.G.I. gas oil	.02⅞	.03
No. 4, low cold test, 24-28	1.07½	1.12½
No. 5, low cold test, 18-22	.82½	.87½
Below 18 fuel oil, industrial	.72½	.77½

NORTH LOUISIANA (Ark., N. La. and Miss. delivery)—

10-14 fuel oil, industrial	.80	.85

CHICAGO (Based on Group 3)—

U.G.I. gas oil	.03	.03⅛
No. 4, low cold test, 24-28	1.07½	1.12½
No. 4, 15 and above, 24-28	.90	.95
No. 5, low cold test, 18-22	.82½	.90
No. 5, 15 and above (18-22)	.80	.85
No. 6, low cold test, 10-16	.75	.82½

PENNSYLVANIA (Inland refineries)—

36-40	.04¾	.05

CALIFORNIA—

Los Angeles:		
30-34 gas oil, per bbl.	1.50	1.70
24 plus diesel, per bbl.	1.50	1.75
24 plus diesel (bunkers)	1.60	1.80
12-16 (bunkers at tidewater)	1.05	1.10
10-16 (cargo lots)	.90	1.10
12-17 (tankcars)	.95	1.10
10-17 (high sulfur)	.70	1.00
San Joaquin Valley:		
10-18 (tankcars)	.65	1.00
24 plus diesel, per bbl.	1.50	1.70
San Francisco:		
24 plus diesel, per bbl.	1.60	1.70
24 plus diesel (bunkers)	1.60	1.70
10-16 (bunkers)	1.10	1.15

GULF COAST—

28-30 gas oil	.04½	.04⅝
28-30 diesel (bunkers)		1.90
Bunkers (bulk cargoes)		.85
Bunker C (bunkers)		1.05

NEW YORK (Bayonne N. J.)—

27 plus, gas oil	.05	.05¼
28-30 diesel (lighterage 6¼c per bbl.)		2.20
28-30 diesel (tankcars)		.05¼
Bunker C (to ocean-going ships in N. Y. harbor)		1.25
Industrial fuel (tankcars)	.04½	.04¾

Lighterage charge 5c bbl. additional.

Bright and Steam Refined

OKLAHOMA (Group 3)—

Bright Stocks:		
190-200 D, 15-25		.20
150-160 D, 0-10		.17
150-160 D, 15-25		.16
150-160 E, 15-25		.15½
100-110 D, 0-10		.15½
Steam refined:		
631 green (treated)		.14½
600 dark green (untreated)		.05

PENNSYLVANIA—

Bright Stocks (Pennsylvania Grade No. 8 color, 140-150 at 210, 545-550 flash):		
10 pour test	.19	.19½
15 pour test	.18	.18½
20 pour test	.17	.17½
25 pour test	.16	.16½
Steam refined:		
600	.08	.09
650	.11½	.12½
600 Pennsylvania flash	.12	.13
630 flash	.16	.17
600 Warren E filtered	.13	.14

Neutral Oil

(Vis. at 100° F. except Pennsylvania and color N.G.A.)

OKLAHOMA (Group 3)—

Zero to 10 Cold Test:	
150-3	.09
180-3	.10
180-4	.09½
200-3	.10½
200-4	.10
250-3	.11½
250-4	.11
280-3	.12½
280-4	.12
300-3½	.13
400-3½	.14
100-2½ paraffin oil	.06
15-20 Cold Test:	
200-3	.10
200-4	.09½
250-3	.11
250-4	.10½
280-3	.12
280-4	.11½

GULF COAST—

Pale Oils:		
200-3	.07	.07¼
300-3	.07½	.07¾
500-3½	.08½	.08¾
750-3½	.08⅝	.09¼
1,200-3½	.09½	.09¾
1,500-4	.09¾	.10
Red Oils:		
200-5-6	.07¼	.07½
300-5-6	.07¼	.07½
500-5-6	.08	.08½
750	.08¾	.09
1,200-5-6	.09¼	.09½

CALIFORNIA (moving to dom. market)—

Pale Oils:		
100-2½-3	.07¼	.08
200-2½-3	.07¼	.08
300-2½-3	.07¼	.08
400-3-4	.07¼	.08
450-3-4	.07¼	.08
550-3-4	.09	.11
600-3-4	.09	.11
Red Oils:		
200-4-5	.07¼	.08
300-5-6	.07¼	.08
350-5-6	.09¼	.11½
400-5-6	.09¼	.11½
450-5-6	.09¼	.11½
500-5-6	.09¼	.11½
600-5-6½	.09¼	.11½
700-6½ plus	.09¼	.11½
750-6½ plus	.09¼	.11½
900-6½ plus	.09¼	.11½

PENNSYLVANIA—

150 vis. at 70° F. color, 400-405 flash:		
Zero pour test	.19	.19½
10 pour test	.18	.18½
15 pour test	.17½	.18
25 pour test	.16½	.17½
180 vis. at 70° F., 3 color:		
25 pour test	.19	.19½
200 vis. at 70° F., 3 color:		
Zero pour test	.23	.23½
10 pour test	.22	.22½
15 pour test	.21½	.22
25 pour test	.19½	.20

Wax and Petrolatum

(Prices per pound)

OKLAHOMA (Group 3)—

124-126 (a.m.p.) w.c. scale	.03

PENNSYLVANIA (Inland refineries)—

122-124 (a.m.p.) w.c. scale	.0295	.0300
124-126 (a.m.p.) w.c. scale	.0295	.0300

NEW YORK—

Wax in bags fully refined:		
122-125 (a.m.p.) wax		.0445
125-127 (a.m.p.) wax		.0455
128-130 (a.m.p.) wax		.0480
130-132 (a.m.p.) wax		.0505
133-135 (a.m.p.) wax		.0535
135-137 (a.m.p.) wax		.0560
124-126 (a.m.p.) w.s.	.0295	.0300
124-126 (a.m.p.) y.s.	.0265	.0280
Petrolatum in barrels, carload lots:		
Dark green		.01⅞
Amber	.02⅞	.03
Extra amber	.03	.03⅛
Lily white	.06⅝	.06¾
Snow white	.07⅞	.07⅞
Cream	.05⅝	.05¾

Export Prices

GASOLINE

GULF COAST—

U. S. Motor	.05⅜	.05½
60-62 400	.05⅜	.05½
61-63 390		.05⅝
64-66 375		.05¾

LOS ANGELES—

U. S. Motor grades:		
55-65 octane	.05¾	.06
65-69 octane		.06¼
Above 69 octane		.06½

KEROSENE

GULF COAST—

41-43 prime white	.05⅛
41-43 water white	.05¼
44 water white	.05⅜

LOS ANGELES—

41-43 water white	.04½	.05

LUBRICANTS

(Pennsylvania Grade)

NEW YORK (f.o.s. in bbls.)—

Cylinder Stocks:		
600 Warren E	.21½	.22
600 S.R. unfiltered	.16½	.17
630 S.R. unfiltered	.21	.21½
600 flash, S.R.	.21½	.22
630 flash, S.R.	.25½	.26
Bright Stocks:		
8 color	.23½	.24
6½ plus color in dilution	.23	.23½

NEUTRAL OIL

200-3 color	.30	.30½
150-3 color	.25½	.26

PARAFFIN WAX

NEW YORK (prices per pound)—

123-126 a.m.p.		.04125
125-127 a.m.p.		.0425
128-130 a.m.p.		.0450
133-135 a.m.p.		.0525
135-137 a.m.p.		.0550
Crude Scale:		
124-126 w.s.	.0295	.0300
124-126 y.s.	.0265	.0280

CRUDE OIL PRICES

Oklahoma, Kansas, North Central and East Central Texas

(January 28, 1937)

East Texas (May 22, 1937)*	$1.35
Van, Tex.†	1.10
Camp Hill, Tex.	1.27
Cass County, Tex.‡	1.25
Talco	.73
Altus and Tipton, Okla.§	1.20
Other fields (see gravity table).	

*All companies. †Humble Oil & Refining Co.; Pure Oil Co. ‡Texas Co. §Gulf Oil Co. Talco by Humble Oil & Refining Co.

West Texas

See gravity table.

Pecos County*	.91
Pecos shallow†	.81

*Shell Petroleum Corp., Gulf Pipe Line Co., and Humble Oil & Refining Co. †Shell Petroleum Corp.

Rocky Mountain States

(Effective January 28, 1937)

Iles, Colo., light*	$1.18
Iles, Colo., heavy*	1.12
Greybull, Wyo.*	1.30
Torchlight, Wyo.*	1.30
Grass Creek, Wyo., light*†	1.30
Grass Creek, Wyo., heavy (Nov. 4, 1936)*†	.62
Hamilton Dome, Wyo. (Jan. 1, 1937)*	.67
Elk Basin, Wyo., light*†	1.30
Frannie, Wyo., heavy*	.62
Frannie, Wyo., light	.70
Hogback, New Mex. (Jan. 1, 1937)*	1.21
Pondera, Mont. (Jan. 26, 1936)*	1.05
Salt Creek Dutton Creek and Midway, Wyo., take Stanolind's Oklahoma prices on a gravity basis.	
Big Muddy, Wyo.†	1.23
Rock Creek, Wyo.†	1.20½
Lea County, N. M. (see West Texas gravity table)	
Artesia, N. Mex. (Jan. 28, 1937)‡	.92
Maljamar, N. Mex. (Jan. 28, 1937)	.92
Canon City and Florence, Colo.	1.10
Lance Creek, Wyo.	.97
Sunburst, Mont. (Nov. 16, 1937)†	.90
Cat Creek, Mont. (Oct. 25, 1937) gr. scale $1.05 below 35°; $1.30 above 40°.	
Cut Bank, Mont. (Oct. 25, 1937), (posted by Northwest Refining Co.)	1.10
Garland, Wyo. (Jan. 1, 1937)†	.50

*Stanolind Oil & Gas Co. †Ohio Oil Co. ‡Continental Oil Co. Cut Bank by Toronto Pipe Line Co.

Southwest Texas

(January 28, 1937)

Pettus	1.37
Salt Flat, Darst Creek, Hilbig, Carroll, Clark, Zoboroski	1.09
Luling	1.00
Lytton Springs	1.12

Saxet and Taft take same gravity table as Gulf Coast.

North Louisiana and Arkansas

Smackover, all grades	$ .90
Tullos and Urania	1.02
El Dorado East field	.90
Union County, Ark.	.90
Ouachita County, Ark.	.90

Gulf Coast

(January 28, 1937)

Choctaw and Darrow, La. See note below	
Clay Creek, Tex.	$1.00
Garden Island, La.	1.37
Cleveland, Tex.	1.27
Hardin, Tex.	1.15
Lafitte, La.	1.24
Livingston, Tex.	1.27
Welsh, La.	.98
Tepetate (La.) (Jan. 4, 1937)	1.12

Duval, Jim Hogg, Webb and Zapata counties, Texas, and Heyser and Placedo fields take Mirando gravity prices. Jennings, La., 5 cents lower than Gulf Coast prices on each degree. Segno, Texas, takes Gulf Refining Co.'s Gulf Coast prices. Choctaw and Darrow, Louisiana, posted for first time by Standard Oil Co. of Louisiana, start below 21 degrees at 90 cents, with 3-cent differential up to 25 gravity, then 2-cent differential up to 40 and above, $1.36. Effective October 1, 1937, Stanolind Oil & Gas Co. in Evangeline, La., pays 92 cents for below 20 gravity, adding 2 cents for each degree upward to 40 and over, at $1.34.

Eastern States

TIDE WATER ASSOCIATED OIL CO.
(Effective October 12, 1937)

Bradford, Pa.	$2.35
Allegany, N. Y.	2.35

SOUTH PENN OIL CO.
(Effective October 12, 1937)

Pennsylvania Grade Oil in National Transit Lines (Bradford field)	2.35
Pennsylvania Grade Oil in Southwest Pennsylvania Lines	2.05
Pennsylvania Grade Oil in Eureka Pipe Line lines	2.00
Pennsylvania Grade Oil in Buckeye Pipe Line lines	1.85
Corning Grade Oil in Buckeye Pipe Line Co.'s lines	1.27

PENNZOIL CO.
(Effective November 19, 1937)

Pennsylvania Grade Oil in National Transit Lines:	
Group A — Includes Cochran, Franklin, Hamilton and Doolittle districts.	2.30
Group B — Includes Tidioute district.	2.29
Group C — Includes Turkey and Tidioute districts.	2.28
Group D — Includes Bear Creek and Porkey districts.	2.27
Group E — Includes Eldeneau, Bull Creek, Rough Run, Carbon, Dipner, Bredlin, McJunkin, Jameson, Kenerdell, Emlenton, Tiona, Lacey and Kinzua districts.	2.25

PURE OIL CO.
(Effective October 12, 1937)

Cabin Creek, W. Va.	2.00
Bradford Hollow, W. Va.	2.00
Kelly Creek, W. Va.	2.00

Middle Western States

OHIO OIL CO.
(Effective January 28, 1937)

Lima	$1.25
Illinois	1.35
Princeton, Ind.	1.35
Midland, Mich. (July 23, 1937)*	1.27
West Branch, Mich. (July 22, 1937)	1.09
Buckeye (July 23, 1937)	1.24½
Arenac, Mich (July 1, 1937)	1.21
Muskegon, Mich.	1.00
Eastern Kentucky:	
Big Sandy River	1.42
Kentucky River	1.50
Western Kentucky	1.40

*Posted by Pure Oil Co.
Midland, Mich., price posted by Simrall Corp. and Pure Oil Co. includes Greendale, Porter, Beaverton, Crystal and equal grades. West Branch and Arenac by Simrall Corp. Eastern Kentucky crude purchased by Ashland Refining Co., Ashland, Ky. Buckeye posted by Simrall Corp. and Pure Oil Co.

Canada

Ontario (Sept. 9, 1933)*

Petrolia	$2.10
Oil Springs	2.17

TURNER VALLEY NAPHTHAS AND CRUDE OIL
(September 1, 1937, by Imperial Oil, Ltd.)

Clear naphtha and discolored naphtha, 65 gravity and higher	$2.38
Discolored naphtha and crude oil 40-40.9 gravity	1.88
Increasing 2 cents for each degree gravity with top price for 64-64.9 gravity	1.84

These prices f.o.b. producers field tankage.

*Imperial Oil, Ltd.

Mexico

Heavy Mexican crude	$.95

*In U. S. currency, f.o.b. ship, based on October spot market transactions.

PANHANDLE COMPLETIONS

Carson County

Hagy-Harrington & Marsh No. 1 Bednorz, 2,500-2,726 feet, 10,846,000 feet gas.

Gray County

Cities Service Oil Co. No. 13 Culler, 3,185-3,260 feet, 406 bbls. per day; No. 11-B Hughey, 3,202-75 feet, 386 bbls. per day; No. 2-C Meers, 3,263-75 feet, 641 bbls. per day. Hagy-Harrington & Marsh No. 1 Garenflo-McConnell, abandoned location. Kewanee Oil & Gas Co. No. 7 McKinney, 3,185-3,290 feet, 687 bbls. per day. Magnolia Petroleum Co. No. 4-B Saunders, 2,830-2,905 feet, 440 bbls. per day.

Hutchinson County

Alma Oil Co. No. 1-D Whittenburg, 3,016-35 feet, 546 bbls. per day. Gordon J. Burch No. 1 Herring, 3,151-96 feet, 546 bbls. per day. L. S. Chism No. 1 Hodges, 3,000-80 feet, 624 bbls. per day. Drilling & Exploration No. 3-A Pond, 3,035-36 feet, 276 bbls. per day. Gulf Oil Corp. No. 75 Dial, 2,910-3,006 feet, 276 bbls. per day. Simpson Oil Co. No. 2 Terry, 3,016-90 feet, 424 bbls. per day. Smith Brothers No. 1 Humphries, 3,090-3,150 feet, 822 bbls. per day. Standard Oil & Gas Co. No. 8-A Hails, 2,984-3,070 feet, 346 bbls. per day. Martes Oil Corp. No. 2-B Pitcher, 3,129-95 feet, 429 bbls. per day. A. C. Oates No. 3 Starnes, 3,060-3,160 feet, 487 bbls. per day. Phillips Petroleum Co. No. 25 Cockrell, 2,955-3,020 feet, 795 bbls. per day; No. 26 Cockrell, 3,023-77 feet, 523 bbls. per day; No. 3 Juanita Johnson, 3,055-65 feet, 743 bbls. per day. S. & M. Oil Co. No. 8 Moore & Langdon, 3,030-3,115 feet, 463 bbls. per day.

Moore County

Panhandle Eastern Pipe Line Co. No. 1-38 Masterson, 2,135-2,234 feet, 35,000,000 feet gas. Texoma Natural Gas Co. No. 12 J. T. Sneed, 2,630-2,875 feet, 21,181,000 feet gas. Dumar Oil & Gas Co. No. 3 Finley, 1,905-86 feet, 3,730,000 feet gas.

New York Market

(Continued from Page 103)

state where several plant operators are sending material into the western part of New York.

Neutral oils were down at least 2 cents per gallon and some suppliers expressed fear that the structure might go even lower when buying failed to develop.

Unwillingness of boat owners to charter at the low of 25 cents per barrel for clean tonnage established on at least one trip from the Gulf Coast has brought slight improvement. A boat was reported chartered last week for 28 cents for December loading and discharge north of Cape Hatteras. Some owners were said to be still dissatisfied with rates and were reported uninterested in bidding until the market shows improvement.

Crude Prices by Gravities

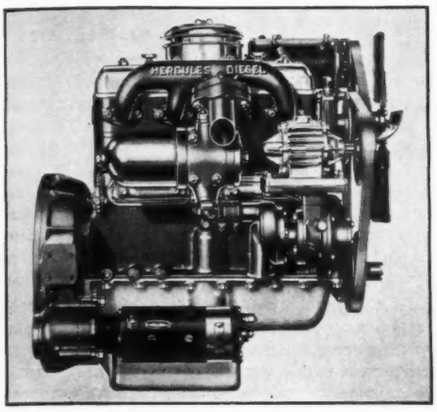
	Oklahoma-Kansas	Oklahoma-Kansas	North and Central Texas	East Central Texas (Mexia district)	North Louisiana-Arkansas	Gray County, Texas	Hutchinson-Carson counties, Texas	Rodessa, Louisiana-Texas and Panola County, Texas	Conroe, Tomball, Raccoon Bend, (Deep) Satsuma	Gulf Coast	Gulf Coast	Lea County, N. Mex. West Texas except Pecos County	Mirando district, Texas	Marion County, Texas	Refugio, Greta, Saxet, Taft, Texas	Anahuac, Flour Bluff, Dickson, Turtle Bay	White Castle, Louisiana	Iowa, Louisiana	Cayuga, Texas
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
Bel. 18	....	....	....	....	....	....	....	....	....	$.90	....	....	....	....	....	....	....	$.90	....
18-18.9	....	....	....	....	....	....	....	....	....	.92	....	....	....	....	....	....	....	.92	....
19-19.9	....	....	....	....	....	....	....	....	....	.94	....	....	....	....	....	....	$.94	.94	....
20-20.9	....	....	....	....	....	....	....	....	....	.96	$.95	....	$.96	....	$1.01	....	.96	.96	....
21-21.9	....	....	....	....	....	....	....	....	....	.98	.98	....	.98	....	1.03	....	.98	.98	....
22-22.9	....	....	....	....	....	....	....	....	....	1.01	1.01	....	1.00	....	1.05	....	1.01	1.01	....
23-23.9	....	....	....	....	....	....	....	....	....	1.04	1.04	....	1.02	....	1.07	....	1.04	1.04	....
24-24.9	....	....	....	....	....	....	....	....	....	1.07	1.07	....	1.04	....	1.09	....	1.07	1.07	....
Bel. 25	....	$.98	....	....	$.90	....	....	$.93	....	....	....	....	....	$.90	....	....	....	....	$.88
25-25.9	....	1.00	....	....	.92	....	....	.95	....	1.10	1.10	$.78	1.06	.92	1.11	....	1.10	1.10	.90
26-26.9	....	1.02	....	....	.94	....	....	.97	....	1.13	1.13	.80	1.08	.94	1.13	....	1.13	1.13	.92
27-27.9	....	1.04	....	....	.96	....	....	.99	....	1.15	1.15	.82	1.10	.96	1.15	....	1.15	1.15	.94
28-28.9	....	1.06	....	....	.98	....	....	1.01	....	1.17	1.17	.84	1.12	.98	1.17	....	1.17	1.17	.96
Bel. 29	$1.06	....	$.96	$1.03	....	....	....	....	$1.20	....	....	....	....	....	....	....	....	....	....
29-29.9	1.08	1.08	.98	1.05	1.00	....	....	1.03	1.22	1.19	1.19	.86	1.14	1.00	1.19	....	1.19	1.19	.98
30-30.9	1.10	1.10	1.00	1.07	1.02	....	....	1.05	1.24	1.21	1.21	.88	1.16	1.02	1.21	$1.16	1.21	1.21	1.00
31-31.9	1.12	1.12	1.02	1.09	1.04	....	....	1.07	1.26	1.23	1.23	.90	1.18	1.04	1.23	1.18	1.23	1.23	1.02
32-32.9	1.14	1.14	1.04	1.11	1.06	....	....	1.09	1.28	1.25	1.25	.92	1.20	1.06	1.25	1.20	1.25	1.25	1.04
33-33.9	1.16	1.16	1.06	1.13	1.08	....	....	1.11	1.30	1.27	1.27	.94	1.22	1.08	1.27	1.22	1.27	1.27	1.06
34-34.9	1.18	1.18	1.08	1.15	1.10	....	....	1.13	1.32	1.29	1.29	.96	1.24	1.10	1.29	1.24	1.29	1.29	1.08
Bel. 35	....	....	....	....	....	$.96	$.91	....	....	....	....	....	....	....	....	....	....	....	....
35-35.9	1.20	1.20	1.10	1.17	1.12	.98	.93	1.15	1.34	....	1.31	.98	1.26	1.12	1.31	1.26	1.29	1.29	....
36-36.9	1.22	1.22	1.12	1.19	1.14	1.00	.95	1.17	1.36	....	1.33	1.00	1.28	1.14	1.33	1.28	1.29	1.29	....
37-37.9	1.24	1.24	1.14	1.21	1.16	1.02	.97	1.19	1.38	....	1.35	1.02	1.30	1.16	1.35	1.30	1.29	1.29	....
38-38.9	1.26	1.26	1.16	1.23	1.18	1.04	.99	1.21	1.40	....	1.37	1.04	1.32	1.18	1.37	1.32	1.29	1.29	....
39-39.9	1.28	1.28	1.18	1.25	1.20	1.06	1.01	1.23	1.42	....	1.39	1.06	1.34	1.20	1.39	1.34	1.29	1.29	....
40,over	1.30	1.30	1.20	1.27	1.22	1.08	1.03	1.25	1.44	....	1.41	1.08	1.36	1.22	1.41	1.36	1.29	1.29	....

Column 1—Companies posting are Barnsdall, Bell, Champlin, Continental, Cushing, Derby, Bay, Eason, El Dorado, Cities Service, Falcon, Globe, Gulf, Johnson, Kanotex, National, Phillips, White Eagle, Stanolind, Sunray, Texas, Sun Vickers and Wilcox.
Column 2—Anderson & Prichard, Carter, Cosco, Deep Rock, Magnolia, Mid-Continent, Pure, Rock Island, Shell, Sinclair, Skelly and Tide Water.
Column 3—All purchasers.
Column 4—Humble Oil & Refining Co. and Sinclair Oil Purchasing Co.
Columns 5, 6, 7 and 8—All purchasers.
Column 9—Humble Oil & Refining Co. and Sun Oil Co. Tidewater Oil Co.'s schedule starts at 35 degrees, $1.34 with 2-cent spread up to 40 and over at $1.44. (Raccoon Bend prices are for deep sand oil.)
Column 10—The Texas Co. (Gulf Refining Co. pays same prices up to and including 34 gravity, but continues its 2-cent spread up to 40 and over at $1.41.)
Column 11—Humble Oil & Refining Co., Sinclair Prairie Oil Marketing Co., Sun Oil Co.
Column 12—All purchasers.
Column 13—All purchasers (effective July 6, 1937).
Column 14—Magnolia Petroleum Co.
Column 15—Humble Oil & Refining Co. (effective July 6, 1937).
Column 16—Humble Oil & Refining Co.
Columns 17 and 18—Shell Petroleum Corp.
Column 19—Tide Water Oil Co.

NEW OR IMPROVED EQUIPMENT

Series of 4-Cylinder Diesels Is Introduced by Hercules

As a further step in its program to make available a complete line of high-speed diesel engines, paralleling in performance and installation dimensions Hercules gasoline engines of similar displacement, the Hercules Motors Corp., Canton.



Ohio, has announced the series DOO 4-cylinder diesels.

The new series has been developed particularly for use in commercial vehicles of smaller and more popular sizes as well as for a wide variety of oil-field, industrial and marine applications. Three models of the new series have been produced. The smallest, the DOOB, has a bore of 3¾ inches and a stroke of 4½ inches, with total piston displacement of 198.8 cubic inches. The DOOC has a bore of 4 inches and a 4½-inch stroke with 226.2 cubic inches displacement. The DOOD has a 4¼-inch bore and 4½-inch stroke with a 255-cubic-inch displacement.

The DOOB is rated at 62 horsepower and the DOOC at 70 horsepower at an engine speed of 2,600 r.p.m. At 1,600 r.p.m. the DOOD develops 56.5 horsepower. Engines of the new series are interchangeable with the Hercules OO series of gasoline engines, allowing manufacturers to supply either gasoline or diesel engines in their equipment without any mounting complications.

In general design the DOO series follows the principles employed in the larger-model engines. The patented auxiliary combustion chamber is designed to insure complete combustion and control of fuel consumption, with smooth, powerful, flexible and economical performance.

Bulletins, Booklets and Other Literature for the Trade

A folder on Rex oil-field chains, describing styles and sizes designed primarily for use on rotary drilling rigs, is offered by the Chain Belt Co., Milwaukee, Wis.

"Pre-Fab in Pictures," a 20-page booklet issued by the Harnischfeger Corp., 6785 West Greenfield Avenue, Milwaukee, Wis., shows how attractive prefabricated homes can be erected in three weeks.

A new booklet, "Preventing Welding and Cutting Fires," should be useful to those interested in welding or cutting operations. It includes rules for preventing cutting fires, as well as other information. Copies may be obtained upon request to any office of the Linde Air Products Co., New York.

The Aluminum Co. of America, Pittsburgh, Pa., is sending on request a 32-page booklet, "Machining Aluminum," containing detailed data on the machining of aluminum and its alloys.

A broadside prepared by W. C. Norris Manufacturer, Inc., Tulsa, is devoted to Norrisized swaged nipples and bullplugs, which are said to be insured against rust.

A bulletin on cooling-towers has been issued by the Fluor Corp., Los Angeles. Superseding a smaller bulletin, the new one contains augmented tables, charts, installation diagrams and other data of value to engineers interested in cooling-tower construction.

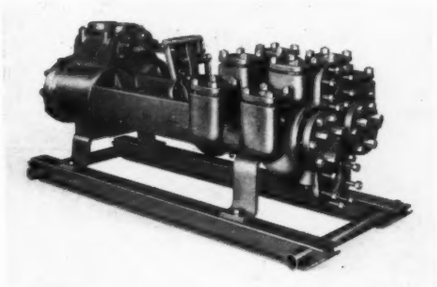
Johns-Manville has published a new 32-page catalog, "Johns-Manville Insulation," which contains specific information on all of the sheet, block and pipe insulations which the company has developed for service on various types of heated and refrigerated equipment in industry. A section deals with JM-20 insulating brick, a new product.

Information about packless self-flaring tube-couplings is contained in a booklet being distributed by the Packless Metal Products Corp., 37-14 Twenty-ninth Street, Long Island City, N. Y.

J. H. Williams & Co., 75 Spring Street, New York, have published a booklet "How to Select and Use Wrenches," containing information to guide both the mechanic and the tool buyer.

Worthington Announces Pump for High-Pressure Service

The Worthington Pump & Machinery Corp., Harrison, N. J., announces a new pump designed specifically for high-pressure boiler-feed and gathering service in oil fields. This machine is a 10 by 4½ by 10 type PG duplex steam pump.

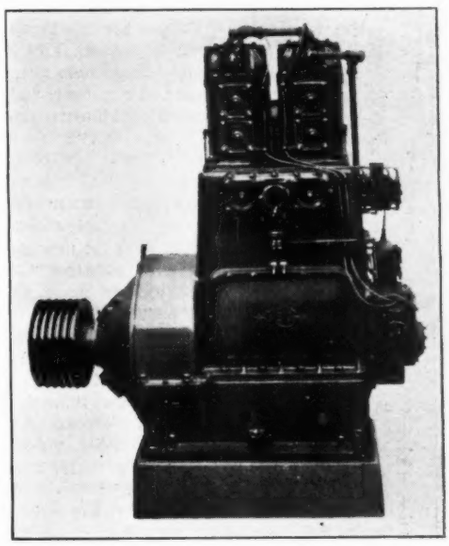


The liquid end of the new unit, conservatively rated for a working pressure of 1,000 pounds per square inch, is of the side-pot type. Individual openings are provided over each valve, which makes them easily accessible. The steam end features piston steam valves designed for 350 pounds steam pressure. All pressure joints have been eliminated by casting the steam cylinders and steam chest integrally.

Mounted on steel skids to facilitate portability, this new development should find a ready market in the oil production field. Bulletin W-103-B3 describes it in detail.

Reid Is Introducing Addition to Its Line of Pumping Engines

The Reid type V-2 7½ by 9-inch twin-cylinder vertical gas engine is an addition to the Reid line



of pumping engines, manufactured by the Joseph Reid Gas Engine Co., Oil City, Pa. This engine is of the two-cycle, crosshead type, and includes in its design many features of construction that have been thoroughly tested in the Reid horizontal-type engines. It is of rugged construction, with particular attention paid to the accessibility of all working parts, while keeping the unit entirely enclosed and dustproof.

Features of the design include shell-type, steel-backed, babbitt-lined main bearings; three-bearing crankshaft; heavy flywheel to eliminate vibration; patented crosshead and piston-rod connection; nickel-content piston and combustion head; location of controls in one main assembly; built-in circulating water pump; and ample provision for lubrication.

The power take-off may include a twin-disc clutch and flat-belt or V-belt pulley, or it may be furnished with solid or flexible-type coupling for direct connection. Complete engineering data and power and fuel consumption charts are given in Bulletin No. 80.

Tompson Succeeds Taubman

G. A. Tompson, who succeeds H. P. Taubman as executive vice president and general manager of the Bethlehem Supply Corp., has been vice president in charge of sales. The company, a subsidiary of the Bethlehem Steel Corp., operates 14 warehouses in Oklahoma, Texas, Kansas and Louisiana. Mr. Tompson is a native of Missouri, attended the University of Missouri, has been engaged in the oil supply business for two decades and is widely known throughout the Mid-Continent territory. For the past two years he has been a resident of Tulsa. He is a member of the Tulsa Club and the Tulsa Country Club. He is a veteran of the World War, having served in the artillery. Mr. Taubman's resignation was effective December 1.

In the report of the retirement of Mr. Taubman in the November 18 issue it inadvertently read Bethlehem Steel Corp.

BJ Underreamer Drilling-Bit Makes Fast Straight Hole

An eccentric-type cable-tool underreamer, the BJ underreamer drilling-bit, has been announced by the Bryon Jackson Co., 2105 East Slauson Avenue, Los Angeles, Calif. This tool is designed to make fast, straight, vertical full-gauge hole while carrying the casing and at the same time underream the hole to a diameter large enough for the casing to be lowered and moved freely. The casing can be carried close behind the bit in all types of formation. Only a few feet of open hole need be present at any time, and the conventional underreamer is not required.

This tool consists of a pilot bit, above which is an eccentric reamer cutter and stabilizer. The design conforms to that of the new BJ straight-hole cable-tool bit with the reamer made an integral part of the bit so that there are no joints and no expanding or detachable parts. The small-diameter pilot bit is longer than the normal drilling stroke and acts as a straight-hole guide.

The eccentric cutter and stabilizer permits the tool to be run through the casing and yet cut a hole of larger diameter than the casing. Its cutting surface is greater than that of conventional underreamers. Because of the eccentric position of the stabilizer the tool is provided with another shorter stabilizing cutter. Both of these are positioned from 8 to 10 feet above the cutting edge of the pilot bit, the distance being governed by the diameter of the pilot bit.

In operation, as the short stabilizer enters the top of the pilot hole the bit is brought to a true vertical position for its entire length, so that the eccentric cutter and stabilizer cuts the formation to the desired diameter.

The underreamer drilling-bit is made in 16 sizes for casing ranging from 6⅝-inch to 18⅝-inch A.P.I. size. The diameter of the underreamed hole made is from 8 1/16 inches to 23 inches with size of pilot bit from 3⅜ inches to 12 inches. The length of the pilot bit is 6 feet for tools to run through 6⅝-inch and 7-inch casing; 8 feet for 8-inch to 9⅝-inch casing; 9 feet for 10¾-inch and 11¾-inch casing; and 10 feet for all larger sizes.

Amercoat, Corrosion-Resistant Plastic, Applied With Spray

As an easy, economical way to stem the destruction of concrete, steel and wooden structures and equipment by corrosion, erosion, electrolysis, etc., the American Concrete & Steel Pipe Co., Box 1428 Arcade Station, Los Angeles, Calif., has developed Amercoat, a sprayable corrosion-resistant plastic. This material is the result of some 15 years of extensive research, experiment and development, and, more than two years of laboratory and field testing is said to have proved its efficiency. Dilute (and up to 20 per cent concentrated) solutions of sulfuric, hydrochloric, nitric, acetic, hydrofluoric and other acids, caustics of all types, gasoline, oils, greases, hydrogen sulfide gas and many other kinds of corrosive agencies have no apparent effect upon Amercoat within a temperature range of minus 50 to 150 degrees, Fahrenheit.

In addition to its inertness to corrosive agencies, Amercoat actually bonds to the base material whether it be concrete, steel or wood. The manufacturers say it cannot be peeled or chipped off and, even after it is applied and allowed to harden, vibration or limited bending will not check, crack or break it. It may be applied with paint-spray apparatus.

R. J. Reed Now Manager

The Struthers Wells-Titusville Corp. of Warren and Titusville, Pa., has appointed R. J. Reed manager of its Titusville Iron Works division in Titusville. Mr. Reed has been associated with this division for more than 10 years and is an alumnus of Syracuse University, class of 1925. He has been succeeded in his previous position of sales manager by Douglas E. Penning.

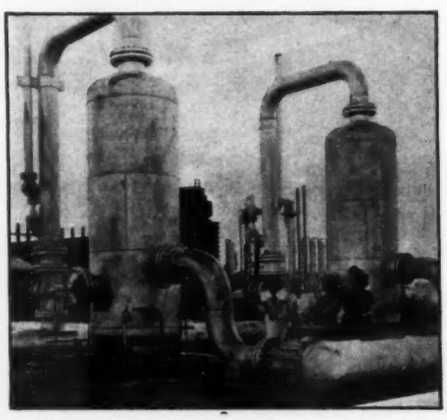
Trackson High Shovel Is Useful for Many Oil-Country Jobs

The Trackson high shovel is now available on "Caterpillar" tractors R4 and D4. This heavy-duty digger and loader is useful around wells, tank farms and refineries, and on pipe-line construction and maintenance. It will excavate in clay, gumbo or rocky soil, dig slushpits, erect dikes and levees, do stripping, leveling and subgrading, remove snow and transport or load all kinds of bulk materials. The Trackson high shovel is regularly equipped with a three-quarters yard bucket and will dig, move and load up to 50 cubic yards per hour.

Advantages claimed for this machine are a fast mechanical hoist which is not affected by weather temperature; independent front-end drive; free dumping of the bucket at any point of the lift; automatic release when bucket reaches maximum height; full visibility for the driver. The "Caterpillar" tractors to which this shovel is adapted are specially equipped with wide-gauge, extra-length (five-roller type) rigid track-frames, front power take-off and blower-type fan.

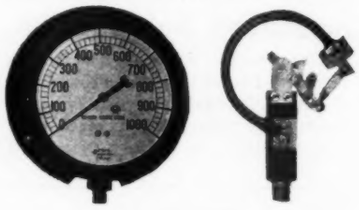
Valves in the Movies

Nordstrom lubricated plug valves are in the movies. Irene Dunn, Randolph Scott and Nordstrom valves appear in "High, Wide and Handsome," an interesting picture based on the oil industry's early struggles for survival. The picture was previewed by over 350 California oil men at a special studio performance.



Stainless Steel and Monel Are Used in Making New Gauge

A stainless-steel bourdon tube and a new method of zero adjustment are features of a pressure gauge especially designed for refinery service by the Jas. P. Marsh Corp., 2073 Southport Avenue, Chicago. For pressures below 100 pounds a drawn-steel bourdon tube is used in the gauge, but for higher pressures the Marsh refinery gauge incorporates a lathe-turned tube as illustrated. This bourdon tube is rough-bored, rebored and reamed to an accuracy of .0005 inch, and a special method of sealing makes it equal to the rigorous service that such a gauge encounters in service. By employing lathe threads and a special socket and cone, a joint has been developed, according to the manufacturer, that will hold tight up to the melting-point of the steel and withstand pressures far beyond the operating pressures of any given gauge.



In the movement, stainless steel and monel metal are used throughout. The segment and pinion gear are stainless steel and all other parts are noncorrosive. The zero adjustment, known as the "recalibrator," was developed, according to the manufacturer, to correct an inherent fault in methods of readjusting gauges.

Improved Safety Mud-Gun Can Be Turned in Any Direction

To permit a safe and convenient method of spraying mud, the Patterson-Ballagh Corp. has introduced its improved safety mud-gun. Instead of turning on threads to produce a swiveling effect, the mud-gun has packed joints to preclude dangerous and expensive blowoffs. Its facility in turning in any direction is an important feature. The one man necessary to operate it can swing the gun back and forth, or up and down, then lock it in position.

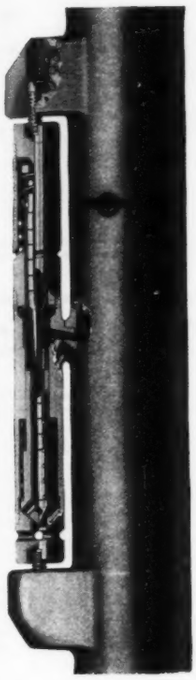
The double swivels turn on packing-glands, assuring leakproof joints that will rotate easily. A 2-inch pipe, thread, inlet and discharge are used. By substituting the P-B lifetime rubber nozzle for the regular swaged nipple, a superior jet effect is produced and cutting out is eliminated. These nozzles are lined with the same tough rubber used in the manufacture of the Patterson-Ballagh protectors.

C. B. Hinton Goes to Houston

C. B. Hinton is now stationed in Houston, Tex., in charge of sales in that district of the Wire Rope and Strand division of the Bethlehem Steel Co. Mr. Hinton is a veteran in both the oil and wire-rope fields, having started back in Smackover just after the war. For the past seven years he has been stationed along the Mississippi with headquarters in Memphis. At the University of Arkansas he played end on the Razorback eleven. Mr. Hinton takes the place made vacant by the departure of Raymond Ford to have charge of the Chicago office of the same company. His territory includes Texas, New Mexico and Louisiana.

Merla Flow Valve Meters Gas According to Rate of Flow

The Merla flow valve, developed by the Merla Tool Co. for renewing the flow of oil wells that have ceased flowing by their own pressure, has distinctive features. It automatically meters the gas according to the rate of flow in the oil string. It is an outside valve. It has no moving parts at the well-head, no stuffing-boxes, nothing in the tubing to break and cause fishing jobs or restrict the flow of liquid.



The precise metering of the Merla flow valve, its automatic sensitivity to the fluctuations of the pressure differential existing between the incoming gas and the fluid being expelled from the well, is contrary to the impression held by some that gas-lift is a "blasting" operation. In the case of wells using gas-lift flow valves the gas upon reaching and passing through the flow valves into the tubing, expands into the gas globules and picks up the oil globules. The gas globules, rising by virtue of their energy and gradually expanding, carrying the oil globules toward the top of the tubing.

Gas is fed into the fluid through the valves, spaced along the tubing, so the expanding process continues en route. This spaced "boosting" is necessary to the successful operation of the system, for the reason that when gas is thoroughly expanded it becomes inert, possessing no working energy.

The basic principle of the gas-lift being that of expanding gases and aeration, which causes the fluid to move upward in the tubing, the rate of this movement is dependent upon the amount of gas fed into the tubing. For efficient production, the volume of gas should vary according to the rate of fluid movement. This type of expansion of entrained gas in an oil mass can only be achieved by precise metering of gas into the tubing. Lifting of water can be accomplished as readily and easily as lifting oil because the gas is fed into the tubing as needed, or in proportion to the aerating ability of the fluid.

Gatke Expands Warsaw Plant

The Warsaw, Ind., plant of the Gatke Corp., damaged by fire September 14, has not only been returned to its normal capacity, but the manufacturing facilities have been increased and improved. This plant handles all types and sizes of frictional devices, including automative brake-linings, clutch-facings, silent and metal timing-gears; industrial frictions, nonmetallic bearings, gears and parts molded to specification.

Salt-Water Shutoff Is Effected by Use of Chemical Syringe

E. J. Roe, 853 North St. Francis, Wichita, Kans., has recently designed and is now manufacturing an oil-well chemical syringe which works in conjunction with the Roe packer plug. This syringe is of large construction and is equipped with packers which control the flow of chemicals. Fluid may be injected directly into the bottom of the well or at any height desired above the bottom.

Being of airtight construction the syringe prevents the chemical from coming in contact with the salt water while being lowered to the bottom of the well, where it is injected directly into the water-producing formation under pressure, then congeals so that the salt water is held back for all time. This job of plugging is recommended on old holes where the bottom of the well has been deepened or enlarged through acid treatment. The operation may also be used on cable-tool drilling wells to shut off water encountered before casing is to be set, avoiding the drilling of wet hole or underreaming. In all cases, the manufacturers say, it greatly speeds the work and reduces drilling costs and in some cases will save the running of one or more strings of casing.

The chemical used is said to congeal within two hours to the point where pumping or drilling operations can be resumed. The syringe operation is performed with either drilling stem or string of tubing.

New Home For Marmon-Herrington

Purchase of the modern factory buildings and 16-acre tract of Duesenberg, Inc., at West Washington and South Harding streets in Indianapolis, Ind., as the new home for Marmon-Herrington Co., engineers and manufacturers of all-wheel-drive motor vehicles, has been announced by Walter C. Marmon, chairman of the board of directors. The company will move from the old Nordyke-Marmon plant at York Street and Kentucky Avenue and planned to be in full production in its new quarters by December 1. There will be no interruption of operations.

Mid-Continent Office Manager

Natural Gas Equipment, Inc., has placed Harry H. Cook in charge of its Mid-Continent office at 811 Sterling Building, Houston, Tex. Mr. Cook's promotion coincides with the introduction of the Boilertrol, Natural Gas Equipment's new gas fuel and reducing regulator for firing oil-field boilers. Mr. Cook will also be in charge of N.G.E. sales work through the company's Mid-Continent distributors, the Houston Oil Field Material Co., Houston, and the Webster Engineering Co., Tulsa.

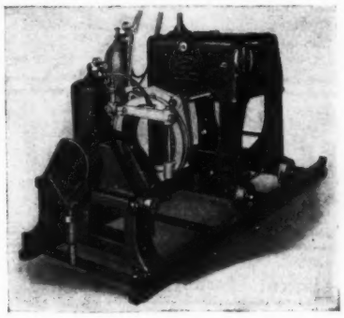
✣

Here is a "Caterpillar" Thirty, equipped with Traction pipe-layer, loading pipe-line materials into a truck on a job of the Illinois Pipe Line Co. near Lima, Ohio.

Improved Model Torch Cutting Machine Developed by Oster

The Oster Manufacturing Co., Cleveland, Ohio, has announced an improved model torch cutting machine which supersedes the original model No. 212. The new machine, No. 222, which duplicates in design any pattern required for pipe welding jobs, does not call for cams, templates or special fixtures, and the surface it produces is said to have the appearance of a lathe-tool cut.

The cutting-torch is guided by a mechanism which duplicates the motion of a torch held in the



operator's hand. It will cut pipe from 2½ to 12 inches. It is used in making tees and reducing-tees, elbows, miters, Y's and blunt bullplugs, as well as hole-cutting.

The case containing the generating mechanism is mounted on four legs equipped with flanged wheels running on a track. The pipe is centered in a vise and supported on roller pipe-rests, if the length requires the additional support, and the adjustable torch-carrier is brought into the proper position. If a hole is to be cut, the pipe is placed at right angles to the torch-carrier, on the pipe-rests.

The settings of the generating mechanism are regulated by positioning a rotating beam or lever which operates a reciprocating slide. The beams are marked to show the settings for the various sizes and types of cuts so that it is a simple matter for the operator to make the correct setting.

Joins Marmon-Herrington

C. Alfred Campbell, widely known automotive sales, advertising, and sales promotion engineer, has been appointed general sales director of the Marmon-Herrington Co., Indianapolis. Mr. Campbell, a resident of Indianapolis for many years, has had an extensive business experience — having been associated with several leading companies in the automotive industry, specializing in commercial and industrial transportation units. His broad knowledge of the problems of dealers, and his wide personal acquaintance in the trade are expected to be of special value to Marmon-Herrington, one of the largest manufacturers of all-wheel-drive passenger cars, commercial vehicles and trucks.

Has Antiseptic Quality

Designed to prevent risk of infection, a new antiseptic quality is present in Rigidoil, which is being introduced by the Rigid Tool Co., Elyria, Ohio, maker of this sulfur-base cutting-oil. Besides this antiseptic quality, experiments are said to have shown Rigidoil to be highly satisfactory for cutting smooth clean threads on iron, steel or brass pipe. It penetrates quickly, cools, lubricates, and will congeal above 20 degrees Fahrenheit, according to the manufacturers.

December

6—Memphis, Tenn., National Asphalt Congress.

6-10—New York, American Society of Mechanical Engineers.

6-11—New York, Exposition of Chemical Industries, Grand Central Palace.

7-9—Omaha, Neb., Nebraska Petroleum Marketers, Inc.

8-10—Flint, Mich., S.A.E. National Production Meeting.

14—Tulsa, annual meeting of directors of Mid-Continent Oil and Gas Association.

1938

January

13—Oklahoma City, Independent Oil Jobbers Association of Oklahoma.

17-21—Cleveland, Ohio, American Road Builders Association.

Oil Man's Calendar

24-25—Minot, N. D., Northwest Petroleum Association, North Dakota Division.

27-28—Minneapolis, Minn., Northwest Petroleum Association, Minnesota Division, Hotel Radisson.

February

7-9—Louisville, Ky., Kentucky Petroleum Marketers Association, Brown Hotel

14-18—New York, American Institute of Mining and Metallurgical Engineers, annual meeting, Engineering Societies Building.

22-24—Columbus, Ohio, Ohio Petroleum Marketers Association, fifteenth annual convention and marketing exposition, Deshler-Wallick Hotel.

March

2-3—Indianapolis, Ind., Indiana Independent Petroleum Association, spring meeting.

7—Rochester, N. Y., American Society for Testing Materials, Spring Regional Meeting and Group Committee Meetings.

16-8—New Orleans, twenty-third annual meeting, American Association of Petroleum Geologists, Roosevelt Hotel.

April

13-15—Cleveland, Ohio, National Petroleum Association.

13-15—Houston, Tex., Petroleum Industry Electrical Association.

17-21—Dallas, Tex., American Chemical Society.

20-22—Buffalo, N. Y., American Institute Mining and Metallurgical Engineers, Open Hearth Conference.

May

(?)—Tulsa, Okla., Natural Gasoline Association of America.

CLASSIFIED ADVERTISING

Patent Attorneys

JACK A. SCHLEY
PATENT LAWYER
Patents Obtained — infringement practice in all Courts—oil field experience. 1807-11 Tower Petroleum Bldg., Dallas. 2014 Second Nat'l. Bank Bldg., Houston. 707 Insurance Building, San Antonio. 433 Munsey Building, Washington, D. C. Address any of these offices.

REGISTERED PATENT ATTORNEYS
United States and Canada
Before disclosing your invention to any one, send for blank form:
"Evidence of Conception."
Instructions "How to Establish Your Rights" and complete information FREE
LANCASTER, ALLWINE & ROMMEL
418 Bowen Building,
Washington, D. C.

Leases and Drilling Blocks

New Texas Oil and Gas Leases. Large or small tracts for brokers and salesmen. State requirements. H. H. WHITE, P.O. Box 674, San Antonio, Texas.

SECURITY ABSTRACT COMPANY
El Dorado, Arkansas
Fee, Lease & Mineral Ownership on short notice. Ownership maps.

ILLINOIS
A complete weekly report on Illinois operations.
One month.....$5.00
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Sample report on request.
OIL NEWS SERVICE
P. O. Box 146 Flora, Illinois

CAN FIND any oil structure that will produce when penetrated. P. O. Box 303, Tonkawa, Oklahoma.

Specializing leases twenty acres up dollar acre, East Tex., La., S. Ark. Owners—Attorney, Box 1122, Little Rock, Arkansas.

"FARM-OUTS" IN PROVEN AREAS

Wish to contact responsible operators and drilling contractors able to take over immediate drilling of several leases in Permian Basin fields—depths 1,600 to 3,500 feet—allowables up to 75 barrels daily—Please give information as to financial ability when replying — Address "Land Dept," Box J-152, The Oil and Gas Journal, Tulsa, Oklahoma.

NEW MEXICO OPPORTUNITY — The well-known Tome Structure, Eastern Valencia County, is now being developed. This is estimated to be one of the first and largest recognized structures in State. Shallow drilling already completed verifies every geological prediction. Extensive development already started.

A limited amount of acreage on this structure is available, including offset acreage and drilling blocks. Consult RINGLE DEVELOPMENT CORPORATION, owner, P. O. Box 286, 'Phone 3365, Albuquerque, New Mexico.

Leases and Drilling Blocks

HELP to drill test well Illinois Basin. I have rig, pipe, leases and geology. Give half for fuel and labor money. A. M. Masters, Murrayville, Illinois.

FOR LEASE, 125 acres joining Darrow field. South of gusher. Write Bella Landry, 516 Iberville St., Donaldsonville, La.

SHALLOW, PROVEN, NO PRORATION. Full ⅞th W. I. leases. On pipe lines. 8c gas market. 80a offsets million gas well. 60a offsets 70 bbl. oil well. 160a offsets oil and gas. Will drill-equip one well for gas $1200, for oil $1500, and assign lease and well. 280a. 5 oil wells pumping, 50 locations to drill, $5000. 80a, 6 oil wells, 20 locations to drill. $8000. Mr. Budd, Osawatomie, Kans.

WANT someone to handle some Real Estate papers draw ten per cent interest. For sale half interest in four hundred thousand dollars worth of Real Estate. Fifty-five thousand dollars cash. Charlie Priolo, 2301 W. 6th St., Amarillo, Texas.

SHALLOW PRODUCTION—Offer most equitable and inexpensive proposition to those financially interested in drilling close-in acreage, and drilling blocks in the Miranda sand area of South Texas. Maximum depth 2,500 feet. Box 191, Oklahoma City.

INDEPENDENT PRODUCER owns proven leases in shallow and deep sand areas West Texas and New Mexico. Need cash for development. Dr. T. J. Jefferies, Box 115, Kermit, Texas.

Leases and Drilling Blocks

BIG MONEY PLAY. K.M.A. to Bryson trend. Deep wells drilling or located. Buy protection leases before you regret. Write Trustee, Box 636, Olney, Texas.

FOR SALE Oil producing leases with many locations yet to drill, leases for sale near production and wildcat leases for drilling contracts.
W. P. HARLEY
Bowling Green, Ky.

LEASE FOR SALE: 80 acres in Clay City pool, extremely well situated, production on three sides. Fee Holder, Box J-150, The Oil and Gas Journal, Tulsa, Oklahoma.

WE OFFER 3,000 acres center Alamo Structure, Huerfano County, Colo. Test well south end of structure opened wet gas oil. Our drill north structure area just spudded. Best of geology, wet gas assured and will make deal with responsible operator to drill the central area. S. W. Pressey, Pueblo, Colo.

HAVE structure 10,000 acres leases New Mexico, best geology, location, test well partly drilled, fully equipped machinery, casing. Account death partner must arrange deal. Will sell entire or part. C. H. Radford, Box 614, Pueblo, Colorado.

New Mexico OIL LEASES WHOLESALE
40 acres at a time.
Roy G. Barton, Clovis, New Mexico.

Wanted

WANT Reliable Drilling Contractor interested in drilling test well in southeastern part N. Mex. L. Box 135, Shamokin, Pa.

Help Wanted

WANTED—Oil equipment salesman, to represent reliable manufacturer of oil testing instruments. Territory, Ohio-Michigan, Penn.-Illinois. Liberal commissions, opportunity for men handling allied lines. Address Box J-140, The Oil and Gas Journal, Tulsa, Okla.

GRADUATE chemical engineer familiar with process and equipment design and operation of absorption and distillation equipment. Girbotol Process Division, The Girdler Corporation, Louisville, Ky.

MECHANICAL ENGINEER. Well established machinery manufacturing concern requires the services of a practical mechanical engineer well experienced in the design of oil field pumping equipment. Sales experience and a familiarity with the Mid-Continent trade desirable as duties will combine both design and a limited amount of sales work. This is a contemplated new line by an old concern and offers excellent possibilities to the right man. Address Box J-160, The Oil and Gas Journal, Tulsa, Okla., giving all pertinent information.

SPLENDID OPPORTUNITY for right man with about five years experience in modern lub oil refinery to go to Europe in a responsible position in lubricating plant there. Applicants kindly state qualifications fully. Address Box J-162, The Oil and Gas Journal, Tulsa, Okla.

Situations Wanted

UNIVERSITY Graudate; who has twelve years experience as a Petroleum Engineer and Geologist, desires a connection with a reliable oil company. Can furnish excellent references. Address Box J-151, The Oil and Gas Journal, Tulsa, Okla.

SALES ENGINEER

Mechanical Graduate, well versed in all drilling and production operations. Widely known and respected. Salary secondary to opportunity. Address P. O. Box 341, Wichita, Kansas.

ENGINEER

Somewhere in this vast oil industry there must be a place for a graduate engineer with a broad business and engineering experience covering manufacturing and application of centrifugal pumps, motors, power transmission machinery, gas engines and transformers. Experience in refining processes, purchasing, estimating and pricing for valuation purposes. Employed, but desire connection with live concern where experience and ability count. Credentials as to character, qualifications, etc., will disclose real merit. Married, age 32. Address Box J-164, The Oil and Gas Journal, Tulsa, Okla.

CHEMIST, 4 years in charge of gasoline and distillate testing for nationally known laboratory. Research experience. Good references. 733 S. Lorraine, Wichita, Kansas

Oil Industry Printing

OIL FIELD LEGAL BLANKS
Leases, assignments, releases, township plat books, well records, etc. Request on your letterhead gets free catalog. Olds Press, 215 East Third St., Tulsa, Okla.

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Classified Display is set with a border and may be used in one or two column sizes.

1 Inch	*1 time*	*$5.00*
1 Inch	*13 times*	*4.50 per inch*
1 Inch	*26 times*	*4.00 per inch*
1 Inch	*52 times*	*3.50 per inch*

This space may be contracted for over a period of one year from the date of the first insertion and is PAYABLE IN ADVANCE, MONTHLY.

CLASSIFIED

Classified advertising rates: First insertion, 35 cents a line; each additional insertion, 25 cents a line, PAYABLE IN ADVANCE. Six words usually make a line. Count as a word each one-letter word and each group of figures. White-space computed at regular line rate. Allow two extra lines for blind ads. Ads of less than three lines not accepted. No formal acknowledgement is made, and proofs cannot be shown in advance of publication.

	1 time	2 times	3 times	4 times		1 time	2 times	3 times	4 times
3 Lines	*$1.05*	*$1.80*	*$2.55*	*$3.30*	*7 Lines*	*$2.45*	*$4.20*	*$5.95*	*$7.70*
4 Lines	*1.40*	*2.40*	*3.40*	*4.40*	*8 Lines*	*2.80*	*4.80*	*6.80*	*8.80*
5 Lines	*1.75*	*3.00*	*4.25*	*5.50*	*9 Lines*	*3.15*	*5.40*	*7.65*	*9.90*
6 Lines	*2.10*	*3.60*	*5.10*	*6.60*	*10 Lines*	*3.50*	*6.00*	*8.50*	*11.00*

We reserve the right to withhold all advertising of questionable character. To avoid delay be sure to send remittance with copy. We will set your ad in the smallest amount of space possible and refund all overpayments. One-time insertions will not be run until fully paid. Forms close MONDAY NOON before each issue date.

THE OIL AND GAS JOURNAL
Tulsa, Oklahoma